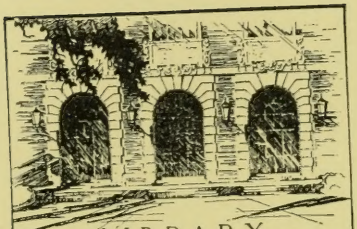

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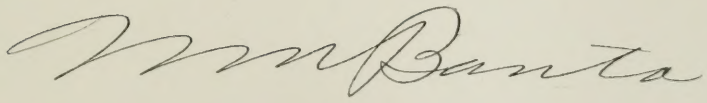

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VOL. II—BIRDS

AMERICAN AUDUBON ASSOCIATION
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CHAPTER X

BIRDS OF PREY

VULTURES live on carrion, and have naked heads and feet, the better to enable them to act as scavengers. Except in nesting season, they are usually found in flocks, returning to the same roosting-place regularly. Strong fliers, they often sail majestically for minutes without an apparent wing stroke.

They have no note except in case of alarm. In America the range is less northerly than formerly, because dead animals are now disposed of or buried, where they formerly remained on the surface to decay. In the South they are protected by law and public sentiment. The sense of smell is keen, but sense of sight is especially so.

Falcons, Hawks, and Eagles are distributed throughout the world, and about thirty species are found in North America. During the migrating season they often travel in flocks; at other times, with few exceptions, they are solitary or found in pairs, the female being slightly the larger. At all times these strong fliers are on the alert for food, which consists largely of small animals, insects, and birds. They have telescopic eyes and a remarkable vision. The members of this family have strong talons, for capturing and holding prey, and strong hooked beaks, for tearing flesh; they pos-

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sess a stomach instead of a crop. They do not swallow feathers and bones, as do owls.

Barn owls are similar to other owls in habits and structure, but constitute a different family. Owls are found in all parts of the world, about twenty inhabiting North America. They resemble hawks in beaks, in talons, and in carnivorous habits, but have eyes directed forward. The eyes are fixed in sockets, so that the entire head must be moved to change the center of vision. This gives them a droll, wise look, which makes the owl an emblem of wisdom. The prey is seized with the talons and swallowed whole, hair, feathers, and bones, and the indigestible parts are later expelled through the mouth in the form of pellets. A peculiarity of the foot is that the outer toe is reversible. Owls, except those ranging far north, are nocturnal, while hawks are diurnal. The cry of the owl is so weird as to create a superstitious dread. The eggs are uniformly white and unmarked. The plumage is long and loose, so that the flight is noiseless. Owls feed largely on destructive rodents; little poultry or few useful birds are destroyed by any except the horned owl. Owls are, therefore, of even greater economic value than the hawks.

THE CALIFORNIA VULTURE*

Dr. Brewer states that the single species composing this very distinct genus belongs to western North America, and, so far as known, has the most restricted distribution of all the large raptorial birds in the world. It is found on the coast ranges of southern California from Monterey Bay

southward into Lower California. It associates with the turkey buzzard, and the habits of both species are alike, and they often feed together on the same carcass.

The vulture's flight is easy, graceful, and majestic. A writer who watched one of these gigantic birds thus pictures it: "High in air an aeronaut had launched itself — the California condor. Not a wing or feather moved, but, resting on the wind, like a kite, the great bird, almost if not quite the equal of its Andean cousin, soared in great circles, ever lifted by the wind, and rising higher and higher into the empyrean."

The weight of the vulture is sometimes twenty-five pounds, requiring immense wings — eight and a half to eleven feet from tip to tip — to support it.

Mr. H. R. Taylor says there have probably been but three or four eggs of the California vulture taken, of which he has one. The egg was taken in May, 1889, in the Santa Lucia Mountains, San Luis Obispo County, California, at an altitude of 3,480 feet. It was deposited in a large cave in the side of a perpendicular bluff, which the collector entered by means of a long rope from above. The bird was on the nest, which was in a low place in the rock, and which was, the collector says, lined with feathers plucked from her own body. This assertion, however, Mr. Taylor says, may be an unwarranted conclusion. From the facts at hand, it appears that the California condor lays but a single egg.

The condor is not an easy bird to capture, for it has a fierce temper and a powerful beak. One was recently captured in California by means of a lasso.

TURKEY VULTURE

The Turkey Vulture ranges throughout temperate North America, as far north as southern Minnesota and New York, wintering in the Southern States.

Vultures, like our gulls, are scavengers, but the former subsist chiefly on carrion and rarely attack living creatures. The nostrils are highly developed and the sense of smell is extremely keen, while the sense of sight is even more highly developed.

Vultures have the head and neck bare of feathers, and they are really repulsive-looking at near sight, though distant flight is graceful. Our American vultures are capable of prolonged flight without any apparent movement of the wings. This seems like a violation of the laws of gravity, but in their majestic soaring I have watched them ascending or descending, while moving in great circles, without once flapping the wings. The birds are much more numerous in the South from Florida and South Carolina west to New Mexico.

They are protected in all the Southern States, and it is not an unusual sight to see small groups of both turkey and black vultures feeding in the public streets, where they exhibit no more fear than our domesticated pigeons. Dr. George F. Gaumer, of Central America, informs us that the killing in immense numbers of certain herons, gulls, and other scavengers has resulted in an increase of human mortality among the inhabitants of the coast. This tends to show how certain birds assist in keeping the beaches and public highways free from decaying animal matter.

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TURKEY VULTURE.
¼ Life-size.

FROM COL. CHI. ACAD. SCIENCES.

BLACK VULTURE.
(Catharista atrata).
⅓ Life-size.

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Many farmers claim that hog cholera and other animal diseases are carried by these scavengers, so they are inclined to kill them. In the North dead animals are now generally burned or buried, so that these birds do not now range so far north as formerly.

The turkey vulture is not an uncommon summer resident in Ohio, Indiana, and Illinois. It is found along the Illinois River, in the vicinity of Starved Rock. According to the latitude, one or usually two eggs are laid from March to June. Small cavities or crevices in the rocks, hollow logs, and hollows in trees are used as nesting sites. Practically no nest is constructed. The eggs, deposited on the bare rocks or leaves, are white or greenish-white, blotched and splashed with shades of purple and red.

THE AMERICAN VULTURES*

Of the eight species of American Vultures, the Black Vulture and the Turkey Buzzard are the best known. They frequent both North and South America, the black species ranging from North Carolina and the lower Ohio Valley westward to the great plains and southward through Mexico and Central America into South America, where it is found in nearly all parts. The range of the turkey buzzard is more extensive, for it extends from New Jersey, the Ohio Valley, the Saskatchewan region, and British Columbia southward to Patagonia. It is only as scavengers that these birds find their true place. "They have the beauty of utility, if no other, and their usefulness is recognized in all warm countries, where they are encouraged in their famil-

iarity with man and are rightly regarded as public benefactors."

The black vulture, which we illustrate, is not as graceful a bird when flying as is the turkey buzzard. The flight of the latter birds is "exceedingly easy and graceful, while the apparent absence of all effort, as they sail in stately manner overhead, in ever-changing circles, and without any apparent movement of their well-shaped wings, makes them really attractive objects to watch." The flight of the black vulture is much more heavy and laborious and is accomplished by frequent flapping of the wings. It is a stronger and heavier bird than the buzzard, and when the two dispute over food it is invariably the victor.

It is said that in many southern cities the black vultures may be seen in numbers "walking the streets with all the familiarity of domestic fowls, examining the channels and accumulations of filth in order to glean the offal or animal matter of any kind which may happen to be thrown out."

The black vultures are gregarious and frequently breed in small communities. They make no attempt to build a home, but lay their eggs upon the ground in slight depressions, which are lined only by the vegetation which has naturally fallen on the spot.

SWALLOW-TAILED KITE

The wing development of the Swallow-tailed Kite and the Everglade kite is remarkable. Like the frigate bird and swifts, the wings extend far beyond the tail. The Mississippi and white-tailed kites, the two other American forms, have less wing development, and their flight is more

SWALLOW-TAILED KITE

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suggestive of the ordinary falcon. The swallow-tailed kite was formerly found as far west as the great plains and northward to southern Canada. They winter in Central and South America. Always of local distribution, their range is becoming even more restricted.

The food of this hawk consists largely of insects, hence it is beneficial; it also eats small reptiles. It captures its food, devours it, and drinks while on the wing. Kites migrate in flocks. In the last twenty years several migrating flocks have passed through the Great Lakes region near Chicago in spring and fall. This would indicate that the birds were either on an extensive hunting expedition or resorted to some remote section of the country to breed. However, little material is available regarding their habits, aside from that furnished by Florida and Texas ornithologists.

During the last fifteen years these birds have been found breeding in Texas and the isolated pine regions of Florida, being about the only sections still inhabited with any certainty by this fleet-winged raptor. In Florida the nests are placed in the tops of the tallest cylindrical pines, usually in wet portions of the state where the nests are accessible only during dry seasons. In several scientific expeditions undertaken to procure the nest and eggs of this species it was found necessary to kill the male kite before ascending the tree to the nest, as the bird boldly darted at the head of the collector, dislodging his headpiece and striking him with its talons until several deep wounds were inflicted.

The nests are constructed of stems, sticks, and a little bark. Two or three eggs are deposited in April or May.

THE EVERGLADE KITE *

The Everglade Kite, or Snail Hawk, as it is sometimes called, has a very small range within the borders of the United States, where it is limited to the swamps and marshes of southern Florida. It also frequents eastern Mexico, Central America, Cuba, and the eastern portion of South America as far southward as the Argentine Republic.

Its habits are very interesting. Peaceable and sociable at all times, other birds do not fear them.

An authority, writing of these birds in Florida, says: "Their favorite nesting sites are swamps overgrown with low willow bushes, the nests usually being placed about four feet from the ground. They frequent the borders of open ponds and feed their young entirely on snails. According to my observations, the female does not assist in the building of the nest. I have watched these birds for hours. She sits in the immediate vicinity of the nest and watches while the male builds it. The male will bring a few twigs and alternate this work at the same time by supplying his mate with snails until the structure is completed. They feed and care for their young longer than any other birds I know of, until you can scarcely distinguish them from the adults."

The nest is a flat structure, the cavity being rarely more than two or three inches in depth, and the whole structure is about twelve or sixteen inches in diameter and about one-half as high. It is usually placed in low shrubs or fastened to the rank growth of saw grass, sufficiently low to be secure from observation. The materials used in its con-

L. CHI. ACAD. SCIENCES.

EVERGLADE KITE.
(Rostrhamus sociabilis).
2 5 Life-size

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MARSH HAWK.

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struction are generally dry twigs and sticks loosely woven together. The cavity may be bare or lined with small vines, leaves, or dry saw grass.

"Its food, as far as known, consists exclusively of fresh-water univalve mollusks, which it finds among the water plants at the edges of shallow lakes and rivers or the overflowed portions of the Everglades."

MARSH HAWK

The Marsh Hawk, or Marsh Harrier, as this species is frequently called, ranges throughout North America and south to Panama, frequenting open stretches. In none of our hawks or falcons do the sexes exhibit a greater difference in plumage than in this species. The female is slightly larger than her mate, and her feathers are dark brown margined with several lighter shades. The male is light pearly gray, with bright yellow feet and legs. The unerring field mark is a white patch on rump. The legs are exceptionally long and the wings are broad, enabling the birds to fly up and down our water-courses in a manner more in keeping with that of a tern or gull.

The food consists largely of mice, small reptiles, and large insects. The birds are comparatively harmless to both the farmer and poultryman, and they are among our most valuable birds of prey.

During the mating season, in May, the males perform evolutions in the air, turning somersaults, accompanied with screeching.

In both dry and wet places, dead rushes, grass, and a

few sticks are arranged in a circular nest, and the parent deposits four to six bluish-white eggs, which are sometimes faintly marked with light brown.

The males become pugnacious when the intruder approaches the nesting site, in order to monopolize his attention, while the female quietly leaves the nest from the opposite direction. A small clump of willows or second-growth overlooking a stream are favorite nesting sites.

"Of 124 stomachs examined, 7 contained poultry or game birds; 34, other birds; 57, mice; 22, other mammals; 14, insects." (Fisher.)

SHARP-SHINNED HAWK

The Sharp-shinned Hawk is the most daring of our small raptors. We should all have just cause to fear the eagles if they displayed as much savagery in proportion to their size as does this little falcon.

The birds range from the Atlantic Coast westward to the plains, but are more common in the heavily timbered sections of the Northern States and the southern portions of Ontario, Quebec, Nova Scotia, and New Brunswick. They are partial to groves of coniferous trees, hemlocks bordering a little stream, or tamarack swamps.

When Mr. Richards, the eminent Connecticut ornithologist, attempted to take a nest, the sharp-shin attacked him with such vigor as to drive him to the ground for his dislodged hat. Sharp-shinned hawks have been known to dash against window-panes in an effort to capture canaries. One exciting chase took place between a sharp-shin and a domestic pigeon which sought the shelter of a barn. The pursued

SHARP-SHINNED HAWK.
½ Life-size.

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FROM COL. CHI. ACAD. SCIENCES.

AMERICAN GOSHAWK.
(Accipiter atricapillus).
½ Life-size.

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reached the barn in safety and flew directly through a crevice under the eaves. The pigeon knew its goal, but the sharp-shin struck the side of the barn with fatal force.

Many of our song birds and domestic fowl are killed by this hawk. They are harmful to all birds, and every gunner is justified in shooting this or any other accipiter on sight. The female, as usual with hawks, is slightly larger than the male. When breeding the birds are so retiring that one rarely suspects their presence unless he examines the woodland closely.

Mr. Richards tells me that these birds still exist in some numbers about Norwich. Many of the nests he has found forty to sixty feet above the ground in the highest coniferous trees, bordering rocky gullies or trout brooks. About a fifth of the nests found were placed in deciduous trees, usually in a large crotch; sometimes an old crow's nest is fitted up and used. Sticks, roots, and bark enter into the composition of the nests, which are large in diameter but comparatively shallow. Three to five extremely handsome eggs are laid.

"Of 159 stomachs examined, 6 contained poultry or game birds; 99, other birds; 6, mice; 5, insects, and 52 were empty." (Fisher.)

GOSHAWK

The Goshawk and the Western Goshawk are inhabitants of the cooler portions of America. The former is found from the Atlantic west to the plains. The general size of this handsome raptor is about that of our red-shouldered or red-tailed hawk, but in disposition it is as savage as the

sharp-shinned hawk. During severe weather goshawks visit the United States, sometimes reaching the Gulf States. The majority of them breed north of the United States, although they are occasionally met with in the Allegheny Mountains and in the northern portions of Michigan. Goshawks are frequently reported from the New England States in small flocks, ranging from six to a dozen in number.

Mr. Charles Richards, of Connecticut, tells me these birds are great enemies of the ruffed grouse. He recalls the experience of his hunting companion, who flushed a grouse and before the sportsman could shoot a goshawk struck the grouse in midair, descending with it to the ground one hundred yards ahead of the hunter. Before the sportsman could kill the hawk it had torn the flesh from half the breast.

Goshawks frequently visit the barnyards to raid the dovecotes and poultry yards. On a New England farm a goshawk attacked a flock of chickens, which rushed through the rear door of the farmhouse into the kitchen, followed by the hawk. It attacked one of the hens, when the farmer felled the bird with his walking stick. This bird, like the accipiters, should be shot at sight.

The goshawk nests usually in coniferous trees, placing their nests of sticks, twigs, and weeds, lined with bark and moss, well towards the top of a hemlock or pine. Two or three pale bluish-white eggs are laid.

"Of 28 stomachs examined, 9 contained poultry or game birds; 2, other birds; 10, mammals; 3, insects, and 8 were empty." (Fisher.)

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RED-TAILED HAWK.
½ Life-size.

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RED-TAILED HAWK

The Red-tailed Hawk inhabits the entire North American continent, but ornithologists have divided the species into several forms. The Pacific Coast representative is called the western red-tailed, while the bird inhabiting the great plains, northward into Canada, is known as Krider's hawk.

In eastern North America the red-tailed is one of our best-known raptors. In many sections of the middle United States it is resident the year around, not being averse to cold weather if food is plentiful.

The broad-square tail, with upper tail coverts a bright rufous, may be seen when the birds are soaring far above the treetops. Like the broad-winged hawk, the red-tail's call note is a whistle, though the birds are not noisy, like the red-shouldered hawk. He is the largest of the common hawks and one of the most beneficial, deserving full protection, as he preys upon rats, squirrels, and other small rodents and reptiles. Occasionally one may take a bird, but the benefit to the agriculturist far exceeds any havoc which these birds cause to poultry or other birds. The name "hen hawk," or chicken hawk, frequently applied to this bird, is entirely unjust.

The nests are built late in March or early in April. The largest trees in the upland timber appeal to the birds as suitable nesting sites. An immense nest of twigs, sod, and hay, with a lining of smaller twigs, is constructed, usually in a crotch near the main trunk or on one of the largest

limbs of the tree. Some nests are as inaccessible as those of the eagle.

Two to four eggs are laid, usually three. The background is white or pale greenish-white, and the markings appear in the form of spots and blotches of brown and lilac. The young do not leave the nest until they are between two and three months of age.

"Of 552 stomachs examined, 54 contained poultry or game birds; 51, other birds; 278, mice; 131, other mammals; 47, insects." (Fisher.)

AMERICAN ROUGH-LEGGED AND RED-TAILED HAWKS

The hawks of our illustration are natives of North America ranging from Mexico northward. The American Rough-legged Hawk is a geographical variety of a rough-legged form that is found in northern Europe and Asia. It is also known by the names of Black Rough-legged and Black Hawk.

This hawk is one of the largest and most attractive of all the species of North America.

In spite of its large size and apparent strength, it does not exhibit the spirit that is so characteristic of the falcons. It preys almost entirely on field mice and other rodents, frogs, and, probably, at times and in certain localities, upon insects, especially the grasshoppers. It is said that they will feed upon lizards, snakes, and toads.

The eggs of this species vary from two to five and are usually somewhat blotched or irregularly marked with chocolate brown on a dull white background

YOUNG RED-TAILED HAWK HOLDING A QUAIL.
(Buteo borealis.)

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AMERICAN ROUGH-LEGGED HAWK.
(Archibuteo lagopus sancti-johannis.)
About ¼ Life-size.

Sir John Richardson says: "In the softness and fullness of its plumage, its feathered legs, and its habits, this bird bears some resemblance to the owl."

The Red-tailed Hawk of our illustration is young and shows the plumage of the immature form.

This species may be called our winter hawk, and for this reason the name borealis is most appropriate. It seldom visits a barnyard, but will occasionally catch a fowl that has strayed away from the protection of buildings. Its food consists to a great extent of meadow and other species of mice, rabbits, and other rodents. The remains of toads, frogs, and snakes have also been found in its stomach.

During the summer months it retires to the forests to breed, where it builds a large and bulky though shallow nest in trees, often at a height of from fifty to seventy-five feet from the ground. The nest is constructed of sticks and small twigs and lined with grass, moss, feathers, or other soft materials. The number of eggs is usually three, though there may be two or four. They are a little over two inches long and less than two inches in diameter. They are dull whitish in color and usually somewhat marked with various shades of brown. SETH MINDWELL.

THE WESTERN RED-TAILED HAWK*

The Western Red-tail is but a darker variety of the red-tailed hawk so common in the eastern portion of North America, where it is commonly called "Hen Hawk." The western form has a long and narrow range covering that part of North America between the Rocky Mountains and

the Pacific Ocean and passing southward into Mexico. As a casual visitor it has also been observed east of mountain system. It is only a summer resident in the northern part of its range. It is one of the earliest of the migrating birds to return to its nesting localities in the spring and one of the last to wend its way southward in the fall.

Its call notes are very similar to those of the common red-tail and consist of "shrill squeals, uttered during the greater part of the day while circling high in the air."

Though its nest is sometimes placed very near the ground, it usually builds at a height of from twenty-five to fifty feet, and nests have been observed in the tops of gigantic redwood and pine trees that were not less than one hundred feet above the base of the tree. Several species of trees are acceptable to this hawk as a place for its home, and it has also been known to build its nest in a species of gigantic cactus. When suitable trees are not to be found, the western red-tail is equal to the emergency and will occasionally be satisfied with a cliff or the "sides of a perpendicular bluff" upon which to construct its home.

Though this species does occasionally attack poultry and other birds, the name "hen hawk" should never be applied to it. The number of domestic fowls and wild birds that it destroys is very small when compared with the large number of the noxious smaller mammals and grasshoppers which it kills. When grasshoppers are common they form this hawk's chief article of diet during the months of late summer and early autumn. The western red-tail is a friend to the agriculturist, and is a worthy object of his appreciation and protection.

RED-SHOULDERED HAWK.
½ Life-size.

RED-SHOULDERED HAWK

The Red-shouldered Hawk, often miscalled Chicken Hawk or Hen Hawk, is probably the commonest raptor in the eastern United States. The note is different from that of our other hawks, being the one the bluejay enjoys mimicking so well, thereby having a little fun at the expense of the other birds. It is larger than any other common hawk except the red-tail. The red-shouldered hawk is partly migratory, arriving in the Middle States and Great Lakes region late in March. Its range is eastern North America, north to Nova Scotia and Manitoba; resident almost throughout the range. The principal food consists of small rodents, snakes, sometimes a bird, but seldom a chicken, so it is decidedly a benefit to the farmer, because of its destruction of mice and ground squirrels.

The birds are partial to a given locality, returning year after year to the same piece of woods, and laying a second or third set of eggs if robbed of the previous set. Like most hawks, the plumage of the two sexes does not differ, but the female is slightly larger than the male.

The nest, a bulky affair, usually placed in the crotch of a large tree along river bottoms or isolated groves, is constructed of twigs, sticks, and chunks of sod, lined with bark and leaves. The two to five eggs, usually three or four, exhibit great variation in color and style of marking.

"Of the 220 stomachs examined, 3 contained poultry; 12, other birds; 102, mice; 40, other mammals; 20, reptiles; 39, batrachians; 92, insects, 16, spiders." (Fisher.)

BROAD-WINGED HAWK

This well-behaved raptor occurs in heavily timbered sections north of the Ohio River, from the Atlantic to the tier of States west of the Mississippi, north through Minnesota, Wisconsin, and the Great Lakes region. Their retiring habits make these birds less conspicuous than many of our large hawks. Their unsuspicious nature allows them to be approached and killed by ignorant hunters who do not know their usefulness.

The adult birds are handsomely marked on the underparts with various shades of fawn and brown. The feathers are edged with white. Immature birds do not have the underparts barred, but the breast and sides are streaked with dark chestnut. Their note is a long-drawn-out whistle, often heard when the bird is concealed among the treetops.

A rather slow-flying hawk, feeding largely on insects, rodents, reptiles, and rarely on birds, they are decidedly useful, and deserve full protection.

When disturbed on their nests, they fly to a distant tree and show very little alarm or anger. The nests are usually situated close to the tree trunks, twenty-five to fifty feet above the ground, preferably in trees situated in deep woods where the foliage is dense. The nests are of sticks and bark lined with green leaves, a peculiarity of this hawk. Two and three eggs are laid in May, about thirty days later than other hawks assume the same duties. The eggs have a light bluish-white background, and are absolutely clouded with shades of light brown and lavender.

BROAD-WINGED HAWK.
(Buteo latissimus.)
½ Life-size.

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FERRUGINOUS ROUGH-LEGGED HAWK
(Archibuteo ferrugineus).

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"Of 65 stomachs examined, 2 contained small birds; 15, mice; 13, other mammals; 30, insects." (Fisher.)

THE FERRUGINOUS ROUGH-LEGGED HAWK*

The pose of the larger hawks as they perch upon the bare limb of a large tree is wonderfully beautiful. Not less attractive is their flight as they gracefully sail high in the air or move forward by measured strokes of their strong wings. The graceful movements of these birds seem all the more interesting now that it is known that nearly all the hawks are a positive benefit to mankind. Especially is this true of the one we illustrate. It is the Ferruginous Rough-leg of western North America. Its range extends from the Saskatchewan southward into northern Mexico, and from the Pacific Coast eastward across the Great Plains and in the South to Texas.

This large and handsome hawk is an inhabitant of the prairie country west of the Mississippi River, where it finds an abundant supply of the smaller rodents which form its chief article of diet. In fact, it feeds to such an extent on the ground squirrels that in many localities it is called the Squirrel Hawk. To a limited extent it also feeds upon grasshoppers and other insects, but never attacks birds.

"The nest is usually built in a tree at no great distance above the ground, but when trees are not available it is placed on the shelves of some of the earth cliffs which abound in certain parts of the West. Like that of the other large hawks, it is composed of good-sized sticks and coarse herbage of one kind or another, and is lined with

softer material than the bulk of the structure is composed of. When such things existed on the plains, the ribs and smaller bones of the buffalo were used in the construction of the nest, often forming a large part of it. The eggs, which are usually three or four in number, are deposited in May, and by the middle of July the young are ready to leave the nest."

When in flight or at rest, it is readily distinguished from the more common American rough-legged hawk by the pure white of the plumage on the underside of the body.

GOLDEN EAGLE

The legs of this great bird are densely feathered down to the base of the toes, distinguishing it from our bald eagle. The Golden Eagles are occasionally recorded during the winter months in the Great Lakes region. Like the snowy owl and raven, they appear in the central United States only when the earth is covered with snow. At this time of the year food is scarce, and formerly many fell victims of the trappers while stealing bait.

Golden eagles are common winter residents in the foothills of Nebraska and South Dakota, where they feed on jack-rabbits and also smaller rodents. They are useful birds, though they do destroy some birds and game. Generally speaking, these birds are silent. When the nesting site is approached, the golden eagle retreats without protest and remains at a safe distance until the trespasser has departed.

Mountainous regions are most frequented by golden

GOLDEN EAGLE.
(Aquila chrysaetos).

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AMERICAN BALD EAGLE.
¼ Life-size.

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eagles, although the nests are often placed not to exceed fifty feet above the ground, in the crotch of a large tree standing in a remote cañon. The immense nests are constructed of sticks, sod, and coarse grass. Two or three white eggs, splashed and blotched with lilac, pale brown, and chestnut, are laid in February and March. The younger birds appear to deposit the largest eggs. The period of incubation is between four and five weeks, and the young do not leave the nest until they are nearly one hundred days old. The female eagle performs the duties of incubation, and is supplied with food by her mate. Golden eagles remain paired for life, and often attain the age of seventy to one hundred years.

BALD EAGLE

It is true that most mountainous regions are inhabited by eagles, but the birds also live in the flat sections where the country may be sparsely settled.

Bald Eagles range from the Atlantic to the Pacific, south to the Gulf, and northward to the Arctic Circle, breeding practically throughout their range. Naturally, species which inhabit the more rigorous sections of our continent are the hardiest birds, and on examination the eagles captured from the Great Lakes region north to Alaska are found to average several inches longer than those of the South, called, respectively, Northern Bald Eagle and Bald Eagle. Several pairs of bald eagles still roam over the northern portions of Indiana and Illinois along the Kankakee and Illinois rivers. The white plumage on the head

is not acquired until the bird has attained the age of three or four years. The birds remain paired for life.

The eagles which sometimes wander from their regular habitats and cause excitement in districts where seldom seen are generally immature birds, foraging about the country. The stories that they attack and carry off infants are untrue, as in many ways the bird lacks the courage and dash of the smaller raptors.

Along the seacoasts the eagle frequently becomes a parasite, living upon the fish which the osprey captures; while some subsist mainly on dead fish cast up by the waves, though in winter they feed extensively on waterfowl. This bird has been selected as our national emblem. "Old Abe," the war eagle carried through the Civil War by the Eighth Wisconsin Regiment, is the most noted bird of history. The flight of the eagle is strong and rapid; it appears most majestic when soaring in great circles high in air, while uttering the noted piercing scream.

The bald eagles are common in Florida, where they begin nesting late in November, household duties claiming their attention for many weeks. Their nests are massive structures, sometimes a result of many years' accumulation, since the birds annually add to the structure until some nests are five feet in depth and as many feet across. Sticks, corn husks, hay, and sod are used in the aerie, which is slightly hollowed. Often the structure is situated in the upright crotch of a large dead tree, near the top. Only two or three pure white globular eggs are laid.

The longevity of the eagle is very great, from eighty to one hundred sixty years.

AMERICAN SPARROW HAWK.
¾ Life-size.

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SPARROW-HAWK

The Sparrow-hawk, often called "Killy Hawk," from its call, "killy-killy-killy-killy," is the commonest and smallest of our hawks. It lives largely upon insects, such as grasshoppers, crickets, beetles, and caterpillars. The call of this little falcon is much more alarming than his presence, while some of our savage raptors are comparatively silent birds. The sparrow-hawk is found throughout the entire American continent, but the form inhabiting the regions west of Kansas and Dakota is known as the desert sparrow-hawk. The birds prefer an elevated perch for a lookout, and also have the habit of hovering almost motionless in midair, then suddenly swooping down to the ground to capture an insect or a mouse. From this habit comes the name mouse hawk, a name more often applied to the shrike.

The natural nesting site is a hollow tree, preferably near water. Sometimes the birds take possession of an excavation originally chiseled by a woodpecker, and again a natural cavity is utilized. In the Yellowstone Park region of Montana, the Western sparrow-hawk frequently takes possession of a magpie's nest. In Ohio these birds have been found nesting in the crevices of stone quarries. Sometimes they lay their eggs on the sawdust between the partitions in an icehouse, usually just beneath the eaves.

Four or five eggs are laid, usually in May. The background is white and the shell is delicately clouded and spotted with pale brown or salmon.

"Of 320 stomachs examined, 1 contained a game bird; 53, other birds; 12, mammals; 12, reptiles or batrachians; 215, insects; 29, spiders; and 29, empty." (Fisher.)

OSPREY

This is the famous Fish Hawk, inhabiting the entire United States, but common only in certain sections near large bodies of water. Fish hawks are common along the Atlantic Coast, especially in Georgia, and from New York north to the St. Lawrence River. On the Pacific Coast they are familiar objects on the islands opposite California. Distinctly fish-eating birds, water is an essential environment. They also exhibit a preference for ocean exposure, no doubt because fishing is easier. Silently and rapidly they move over the water at a height of about forty feet, until some member of the finny tribe is discerned close to the surface. Instantly the great wings are closed, and the osprey plunges head foremost into the depths, often completely disappearing from view. In a second he arises with a fish in his talons, and with a scream of triumph flies to his nest or some favorite log or limb, which is used as a lunch counter.

You or I may not be the only witness to this performance. The bald eagle, from his elevated perch, has intently watched the proceedings, and his time to participate now presents itself. Immediately he starts in pursuit of the fish hawk, and the latter, terrified at the onrushing bird of greater size, drops his catch to lighten his weight, thus facilitating his escape. No sooner does the fish leave the osprey's

OSPREY.
⅓ Life size.

AMERICAN BARN OWL.
½ Life size.

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claws than the eagle plunges downward, grasping the prize before it reaches the water.

Along the shores of the Great Lakes this bird frequently spends the summer. The Indians regard it as a bird of omen.

As the waters gradually freeze, this bird moves southward, wintering along the Gulf, and sometimes in the West Indies.

The nest of the osprey is a huge structure. The birds select various nesting sites — trees, rocky cliffs, or the bare ground. When the nests are placed in low situations, the birds select an isolated island or a point of land jutting out into the water. Sometimes an old shack or shanty looks inviting to the fish hawk, and he constructs his nest of sticks, cornstalks, roots, and hay on the roof. The same nest is used year after year, and the birds accumulate fresh material each season until the nests are sometimes five feet deep and as many feet in diameter. The two to four, usually three, eggs vary greatly in coloration. The background may be light yellow, light or dark brown, and the markings are in form of spots and cloudings of different shades of red and brown. The eggs appear oily and usually have a decidedly fishy odor.

BARN OWL

The Barn Owl, or Monkey-faced Owl, is distributed throughout the United States, Mexico, and northern West Indies. The birds are more numerous south of the Ohio River, and are also common along the Pacific Coast in

California. They are known locally as "White Owls," and frequent the bottom lands adjoining the Scioto River, breeding most commonly in the large sycamores which line that stream.

Mr. Dawson, in his book, "Birds of Ohio," writes:

"Some idea of the bird's usefulness in the community is conveyed by the 'pellets' or little spheres of indigestible matter ejected by the owl from time to time. I examined many of them, and found them made up entirely of the hair and bones of the smaller rodents, mostly mice. There must have been the debris of several thousand mice and rats." Captain Bendire is certain that the captures of a single pair of barn owls, during the nesting season, exceed those of a dozen cats for the same period.

The barn owl, as its name indicates, often passes the day in barns or outbuildings, being drawn thither solely by the abundance of mice. It offers no violence to the poultry, not even to the pigeons which often share its quarters. When disturbed during its slumbers it makes a hissing noise, or clicks its mandibles in a threatening way. It has, besides a "peevish scream" and some querulous notes. Its very odd appearance arouses interest in the average farmer's boy, who discovers in him a curiosity, which is too seldom satisfied until this best mouser is killed.

Of the breeding habits, Capt. Charles Bendire says: "The barn owl, strictly speaking, makes no nest. If occupying a natural cavity of a tree, the eggs are placed on the rubbish that may have accumulated on the bottom; if in a bank, they are laid on the bare ground and among the pellets of fur and small bones ejected by the parents. Fre-

SHORT-EARED OWL.
(Asio accipitrinus).

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quently quite a lot of such material is found in their burrows, the eggs lying on and among this refuse. Incubation usually commences with the first eggs laid, and lasts about three weeks. The five to nine eggs are almost invariably found in different stages of development, and young may be found in the same nest with fresh eggs. Both sexes assist in incubation, and the pair may sometimes be found sitting side by side, each brooding a portion of the eggs."

SHORT-EARED OWL

The Short-eared Owl, or Prairie Owl, is common to both the Eastern and Western continents, inhabiting the United States from the Atlantic to the Pacific.

This owl is less nocturnal than others, excepting the snowy and hawk owls; as the two latter species are inhabitants of open territory and range north, they naturally have little opportunity to escape the daylight during the summer months. Like the marsh hawk, it destroys great numbers of mice, meadow moles, and other injurious rodents. Many fall a victim to gunners who are so ignorant and cruel as to shoot anything that comes within range. Despite the bird's size, the flight is noiseless.

Five to eight pure white eggs are deposited on the ground, usually at the base of a clump of grass. The eggs are laid early, usually before the verdure appears. It is remarkable how these birds can successfully hatch their eggs and rear their young on the bleak prairies of Minnesota and Dakota in April, when the only shelter is a tussock of dead grass.

When the young have hatched, the old become very uneasy about the nest at the approach of a stranger, circling about, and alighting in the grass a short distance away, while continually uttering an alarm note which sounds like the whine of a puppy.

THE GREAT GRAY OWL*

The Great Gray or Cinereous Owl is the largest of the American owls. The appearance of great size, however, is due to its thick and fluffy plumage. Its body is very small, being only slightly larger than those of the barred or hoot owl. The eggs are also said to be small, when compared with the size of the bird.

The range of this handsome owl is practically confined to the most northern regions of North America, where it breeds from the latitude of Hudson Bay northward as far as forests extend. In the winter it is more or less migratory, the distance that it travels southward seeming to depend solely on the severity of the season. It has been captured in several of the northern United States, from the Atlantic to the Pacific oceans.

It is crepuscular or slightly nocturnal in the southern parts of its range, but in the high North it pursues its prey in the daytime. In the latter region, where the sun never passes below the horizon in summer, it is undoubtedly necessity and not choice that prompts it to be abroad in the daylight. Its yellow eyes are very small, and would indicate day-hunting proclivities.

Dr. A. K. Fisher states that its "food seems to consist

GREAT GRAY OWL.
(Scotiaptex cinerea).
¼ Life-size.

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SAW-WHET OWL.
$\frac{3}{4}$ Life-size.

principally of hares, mice, and others of the smaller mammals, as well as small birds." Dr. W. D. Dall has taken "no less than thirteen skulls and other remains of red-poll linnets from the crop of a single bird." Specimens in captivity are reported to have relished a diet of fish.

Its nest is described as a coarse structure built in the taller trees and composed of twigs and lined with moss and feathers. The note of this great bird is said to be "a tremulous, vibrating sound, somewhat resembling that of the screech owl." The great gray owl is also known as the Great Sooty Owl and the Spectral Owl. Its generic title, *Scotiaptex,* is from two Greek words, one meaning darkness and the other to frighten.

THE SAW-WHET OWL*

A curious name for a bird, we are inclined to say when we meet with it for the first time, but when we hear its shrill, rasping call note, uttered perhaps at midnight, we admit the appropriateness of "saw-whet." It resembles the sound made when a large-toothed saw is being filed.

Mr. Goss says that the natural home of this sprightly little owl is within the wild woodlands, though it is occasionally found about farm houses and even cities. It is very shy and retiring in its habits, however, rarely leaving its secluded retreats until late at eve, for which reason it is doubtless much more common throughout its range than is generally supposed. It is not migratory, but is more or less of an irregular wanderer in search of food during the autumn and winter. It may be quite common in a locality

and then not be seen again for several years. It is nocturnal, seldom moving about in the daytime, but passing the time in sleeping in some dark retreat; and so soundly does it sleep that ofttimes it may be captured alive.

The flight of the Saw-whet so closely resembles that of the woodcock that it has been killed by sportsmen, when flying over the alders, through being mistaken for the game bird.

These birds nest in old deserted squirrel or woodpecker holes and small hollows in trees. The eggs—usually four—are laid on the rotten wood or decayed material at the bottom. They are white and nearly round.

The small size of the saw-whet and the absence of ears at once distinguish this species from any owl of eastern North America, except Richardson's, which has the head and back spotted with white, and legs barred with grayish brown.

SCREECH OWL

The Screech Owl, sometimes known as the Little Horned or Red Owl, ranges throughout eastern North America. The most abundant of our owls, it is the smallest variety inhabiting the eastern United States, excepting the rare saw-whet owl. The plumage, regardless of age or sex, may be the common phase, a dark gray, or a rufous brown. The "red phase" shown in the plate is the rufous brown. These birds in some phase may be found in every portion of the United States, being divided by naturalists into about fifteen sub-species, each having a given range, such as Florida screech owl, Texas screech owl, Mexican

SCREECH OWL.

GREAT HORNED OWL.
$\frac{3}{4}$ Life-size.

screech owl, California screech owl, Rocky Mountain screech owl, etc. The territory inhabited by the common form is the region east of Kansas, across the continent to the Atlantic, and as far south as Georgia.

The notes of the screech owl are weird and more uncanny than even those of the other species. Like the howl of the coyote or the cry of the loon, there is something suggestive of human distress or agony in these notes. The quavering notes on the darkest night may induce a superstitious dread, but the birds deserve full protection, as they are highly beneficial because of their destruction of mice and other rodents and beetles.

The birds, usually resident throughout the year wherever found, have the habit of frequenting deserted buildings, often laying their eggs in some corner of an old barn or shed. Typical nests are placed in deserted woodpecker excavations or hollows in trees and stumps. Three to six pure white eggs are laid in April.

GREAT HORNED OWL

The Great Horned Owl, or Hoot Owl, is resident throughout eastern North America from Labrador to Costa Rica. It is one of our four American birds considered decidedly detrimental to the interests of man. The Department of Agriculture and the Biological Survey have both condemned this bird and imposed the death sentence upon him. The food in many instances is taken from barnyards; consequently, poultry enters largely into the bill of fare; many pellets, too, are found to contain the feathers and

bones of our most valuable wild birds, such as the bob-white and ruffed grouse. In other instances I have known horned owls to live in some hollow tree overlooking a corn crib or granary, where they subsist on rats.

The notes of the horned owl are a deep and loud "hoot," uttered particularly during inclement weather or before a storm, for in districts inhabited by these owls one seldom fails to hear the weird hootings when the barometer indicates a change of weather. It seems hard to imagine one of these solemn-looking birds, that stand so erect, sitting horizontally on her nest. However, they assume this position with ease, and the naturalist venturing forth into the snowbound wood in February, uses his field glasses to detect the two tufts of feathers, the only telltale signs that some old hawk's nest is occupied by this big bird.

The household duties of these hardy birds are commenced during the coldest days of February. Frequently an old nest of the great blue heron, red-tailed or red-shouldered hawk is used. Two to four pure white eggs are laid. Often the eggs are deposited in a hollow tree, where only a few feathers separate them from an ice foundation at the bottom of the cavity.

THE WESTERN HORNED OWL*

The Western Horned Owl is a variety of the great horned owl of eastern North America. It has a wide and extensive range, reaching from Manitoba on the north into the table-lands of Mexico on the south, and eastward from the Pacific Coast across the Great Plains. Occasionally specimens are

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WESTERN HORNED OWL.
(Bubo virginianus subarcticus)

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taken as far east as the States of Illinois and Wisconsin. It is replaced in the Arctic regions by the Arctic Horned Owl, which is lighter in color, its range only reaching as far south as Idaho and South Dakota. The Western horned owl breeds nearly throughout its range.

It feeds on grouse and ducks, as well as other species of valuable food water birds. It also kills many forest birds that are useful to man as insect destroyers. It is said that they will feed on mammals, such as polecats, prairie dogs, squirrels, rabbits, and other rodents. But this is not the worst crime of this marauder, for when it visits the more thickly inhabited districts it appreciates the delicacies to be found in the poultry yards of the farmer, and kills far more than it needs to satisfy its appetite.

"While perhaps the majority of these birds resort to hollow trees or old nests of the larger hawks and of the common crow, quite a number nest in the windworn holes in sandstone and other cliffs, small caves in clay and chalk banks, in some localities on the ground, and, I believe, even occasionally in badger holes under ground."

It is said that the Western horned owl will lay two or more sets of eggs at short intervals if the nest and eggs are disturbed. The number of eggs laid is usually two or three, and infrequently four are found, and sets of five and six have been reported. The eggs are white, showing, as a rule, but little gloss, and are roughish. In form they are rounded oval, about two and one-half inches long, and nearly two inches in diameter. The period of incubation lasts about four weeks, and it is said that only the female sits on the eggs, the male furnishing her with food.

SNOWY OWL

The Snowy Owl breeds from Labrador northward, and wanders southward in winter into the northern United States.

Like the hawk owl, it is diurnal in its habits, but is most active in early morning and again about dusk. Like the hawk owl, too, it occupies a commanding perch for hours on the watch, occasionally dropping on a rodent or sailing about, soon to return to the same perch.

"During January and February of 1902, there occurred a remarkable invasion by snow owls, reported from localities as diverse as southern Michigan and Long Island. They were especially abundant in Ontario, and were much sought for their plumage. According to Mr. Ruthven Deane, 'a Mr. Owens, taxidermist, living near Mooresville, Middlesex County, received and mounted twenty-two specimens during the winter, and commented on the fact that thirteen years ago he prepared exactly the same number, not having handled a single specimen during the interim.' Mr. Deane collected information of more than 430 of these owls that were killed during this one flight.

"The home of the snowy owl is on the immense moss and lichen covered tundras of the boreal regions, where it leads an easy existence, finding an abundant supply of food during the short Arctic summers. Hunting its prey at all hours, it subsists principally upon the lemming, and it is said to be always abundant wherever these rodents are found in numbers. Other small rodents are also caught,

SNOWY OWL.

AMERICAN HAWK OWL.
(Surnia ulula caparoch).
¼ Life-size.

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as well as ptarmigan, ducks, and other waterfowl, and even the Arctic hare, an animal fully as heavy again as the owls." (Bendire.)

This great bird nests on the ground, laying from three to ten eggs.

HAWK OWL

The Hawk Owl is a handsome bird, shaped after the manner of our falcons, but the position of the eyes, shape of the tail, and habits of the bird are more in keeping with those of owls. In habits, plumage, and structure, it is the connecting link between hawks and owls. Its flight is swift and hawk-like, but noiseless; however, these birds see readily in daylight and are abroad in midday, even in our brightest weather. Their favorite haunts are in the northern portions of both continents, and only during the coldest weather do they find their way southward to the northern border of the United States. Their food is chiefly small rodents. In the fur country about Hudson Bay and the Anderson River region these birds nest quite commonly. The native fishermen experience perpetual daylight during May, June, and July; it would therefore seem that the hawk and snowy owls, being inhabitants of the Land of the Midnight Sun, are of necessity diurnal. When starting from a high perch, the hawk owl pitches down to near the height of bushes or grass, and flies off just over the top of the grass.

The nests, usually placed in coniferous trees, are composed of sticks, twigs, lined with hay, moss, and a few feathers, wherein four to six white eggs are laid. This bird

at times deposits its eggs in hollow stumps, after the manner of the screech and barn owls.

BURROWING OWL

The Burrowing Owl, one of our smallest owls, confines its range to the prairies and great plains from Missouri, Kansas, and Dakota westward. The Southeastern form, known as the Florida Burrowing Owl, inhabits the Bahama Islands and portions of Florida. The burrowing owl has become popular through various sensational articles describing the contents of a burrow on the cheerless prairie, as being shared by this little bird, the prairie dog, and the rattlesnake. It is true that burrowing owls, like prairie dogs, are found in communities, and inhabiting sections of the prairies that are perforated with burrows suitable for nesting sites; often holes constructed by mammals are utilized. It should be distinctly understood, however, that these owls choose only the abandoned burrows of rodents, principally those of the prairie dogs. Their nesting places are not shared by other creatures, unless an unwelcome guest should intrude. It is a common occurrence for a number of the owls to congregate and nest together, entering and departing from a single burrow. The males are kept busy supplying their mates with mice, small birds, and grasshoppers, so that this dirty little bird is a highly useful one.

Frequently the eggs are deposited on the bare earth; but if weeds, grass, or other material is available, the birds usually accumulate a small quantity on which to deposit their five to nine pure white eggs.

FROM COL. CHI. ACAD. SCIENCES.

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BURROWING OWL.
(Speotyto cunicularia hypogaea.)

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CHAPTER XI

WOODPECKERS, CUCKOOS, ETC.

PAROQUETS belong to the parrot family. Of the five hundred species of this family, only one, the Carolina Paroquet, inhabits eastern North America, as most species are confined to the tropics. Two toes extend forward and two backward. The bill is strong and decidedly hooked, the upper mandible being movable, and used in climbing. These are arboreal, fruit-eating, seed-eating birds of bright plumage. They are good climbers and strong fliers. Almost all varieties of parrots can be taught to speak.

Mr. Frank M. Chapman says: "All cuckoos have two toes directed forward and two backward, but the cause or use of this characteristic is difficult to understand, so widely do the members of this family differ in habits. Some are arboreal, never visiting the earth; some are terrestrial, running with great swiftness, and never perching far above the ground. Most cuckoos — all our thirty-five American species — have noticeably long tails which they raise and droop slowly just after alighting, or when their curiosity is aroused. Of the 175 known species, only two are found in the Northeastern States. Cuckoos are mysterious birds, well worth watching. I would not imply that their deeds are evil; on the contrary, they are exceedingly beneficial birds. One of their favorite foods is the tent caterpillar which spins the destructive 'worms' nests' in our fruit and

shade trees. Indeed, we should be very much better off if cuckoos were more numerous."

Kingfishers are fishing birds in America, though some Old World species are insectivorous and also feed on mollusks. They are solitary birds of local habits.

About twenty-five species of woodpeckers are found in North America. The feet have two toes extending forward and two backward. All toes are strong and equipped with long, sharp claws; the bills are strong and chisel-like. They are arboreal, though the flicker is found often on the ground, searching for ants. The tail feathers are stiff, ending in spines for propping the bird; the tongue is distensible and has a horny, spear-like tip suitable for probing into the holes of wood larvæ in order to spear and withdraw these grubs. These birds are of great economical value to agricultural and horticultural interests. The mate call includes the drumming with the bill on the dead trunks or limbs of trees. Eggs are uniformly white and placed in holes usually hollowed by the bird in the trunk of a tree.

CAROLINA PAROQUET

The range of the Carolina Paroquet is now restricted to parts of Florida; formerly north to southern Ontario.

"It was not possible that, in an age of guns and women, a creature of such beauty as the Carolina paroquet should have been spared to grace our landscape. Besides brilliant plumage, a dashing figure, and a strident voice, fondness for fruits and young grains conspired to bring about the practical extermination of this once abundant bird.

CAROLINA PAROQUET.
Life-size.

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"There are gray-haired men still among us who remember the shieking companies of 'parrots' which used to haunt the bottom lands and go charging about the sycamores like gusts of autumn leaves; but today only the cunning plume-hunter or lucky ornithologist may penetrate to the remaining fastnesses of the species in the Everglades of Florida."

The flight of the paroquet is graceful and swift, comparable in both respects to that of the passenger pigeon. The birds formerly moved about in companies of from fifty to five hundred, and, when making extended flights, or when coming down to feed, the flock fell into a V-shaped figure something like that made by the Canada geese. Although awkward in confinement where their movements are restricted, the birds move easily through the branches of a tree, now swinging head downward to reach a drooping seed, now regaining the perch by the aid of the powerful beak, which is used as a third foot. The birds were especially noisy during flight and at meals, screaming and chattering, but during the middle of the day they rested or cooed tenderly, as if it were the mating season. Their favorite food was the cockle-burr, which grows abundantly in low places. Besides this, they ate wild fruit of many kinds—persimmons, wild grapes, pawpaws—as well as beech nuts, acorns, and the round seed-balls of the sycamore. When settlers came, there was added wheat in the milk and cultivated fruits.

The birds roosted in great hollow trees, mostly sycamores, where the great beak, which did duty for hands and feet daytimes, rendered service as a hammock hook at night. It was in hollow trees also that they nested. They breed

in the South, in colonies, in cypress trees, the nest being a mere bunch of sticks placed at the forks of horizontal limbs, and containing, as is supposed, up to four or five white eggs. (Adapted from Dawson's "Birds of Ohio.")

It is claimed on good authority that these birds hibernated in northern latitudes.

ROAD-RUNNER

This is the Chaparral Cock of Texas, New Mexico, Colorado, and California. The Mexican knows him as the paisano, or snake-killer. At first glance their appearance is suggestive of a large cuckoo. I noticed Road-runners quite frequently through Texas. Entering the driveway ahead of the horses, these fleet-footed birds easily outdistanced the average traveler.

Their food consists largely of lizards, swifts, and other small reptiles. The nests are often placed in cactus plants. I found one March 8, 1909, at Camp Verdi, Texas. The nest was similar in construction to the cuckoo's, but much larger. Twigs, stems, and grass entered into the composition, but on the whole it was a very shallow affair, placed four and one-half feet up in a cedar tree by the roadside.

YELLOW-BILLED CUCKOO

The Yellow-billed Cuckoo ranges generally throughout North America, wintering in Central and South America.

The yellow-billed, like the black-billed cuckoo with the same range, is highly beneficial to the interests of agricul-

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ROAD-RUNNER.
(Geococcyx californianus)
¼ Life-size.

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YELLOW-BILLED CUCKOO.
(Coccyzus americanus).
½ Life-size.

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ture and horticulture. These birds destroy immense numbers of caterpillars, moths, and beetles, hence are among our most useful birds. Birds of retiring habits, living chiefly in thickly foliaged bushes or trees, they are seldom seen perching on the outside branches. Like our woodpeckers, two toes extend forward and two backward. The flight is swift, horizontal, and rapid. The tails are long and lightly colored at the tips, the outside tail feathers being decidedly the shortest.

Like our flycatchers, they appear from the South when the verdure has matured, and depart from their summer habitats before we have experienced our first cold weather. In September and October it is silent and suddenly disappears.

The notes are a series of low tones uttered while the bird is at rest or flying from one tree to another. They might be described as "chow-chow-chow-chow," with greater emphasis on the last two syllables.

The nest are of grass and twigs with a lining of dead leaves and grass, usually built in a crotch or on a horizontal limb, sometimes in a low shrub, not to exceed three feet from the ground. Orchards, second growth, and bushy pastures are favorite sites.

Two to five light blue eggs are laid in May or June. Several days may elapse between the time of laying one egg and the next one. As the parent begins incubation with the first egg, nests are often found containing both young and eggs. Sometimes the two species deposit their eggs in the same nest. The eggs of the black-billed cuckoo are slightly smaller and darker than those of the yellow-billed.

BLACK-BILLED CUCKOO

The Black-billed Cuckoo and the yellow-billed cuckoo resemble each other in appearance and habits so closely that a single article or plate might do for both. Indeed, it is a very difficult matter to distinguish these closely related species unless one is near enough to recognize the black color of the lower bill, which is the main distinguishing characteristic, or slight difference in color of tail, which has only inconspicuous whitish tips. The cuckoo, or rain crow, is one of our very interesting birds. It is closely related to the European cuckoo, which, like our cowbird, lays its eggs in the nests of other birds; but our cuckoos rear their own young, though there is a carelessness about the nesting habits even in our own species. Mr. Frank M. Chapman says: "There is something about the cuckoo's actions which always suggests to me that he either has done or is about to do something he should not." It is more easy to hear these retiring birds than to see them, as they avoid the outer branches of trees, and fly from the protecting foliage of one tree directly into the middle branches of another, so that it is difficult to see them except on the flight from tree to tree.

The nesting habits of the two species are so nearly identical that the differences have already been pointed out in the descriptions of the nesting habits of the yellow-billed cuckoo. The cuckoo usually utters his soft and beautiful notes of *Cuck-oo-oo, cuck-oo-oo* as he flies, but only, as a rule, when a few yards from the place on which he intends alighting.

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BLACK-BILLED CUCKOO.
(Coccyzus erythrophthalmus, Wils.)
⅞ Life-size.

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KINGFISHER.
(Ceryle alcyon).
⅜ Life-size.

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BELTED KINGFISHER

The Belted Kingfisher breeds from the southern United States northward into Canada, wintering from Virginia and Kentucky to South America.

The birds are partial to certain ponds and creek holes, and only the freezing of the water drives them farther south, where they await the first spring thaw, returning as early as the latter part of February.

These saucy birds present a novel sight as they poise above the water and suddenly with closed wings drop headforemost out of sight, only to appear with a minnow in the strong beak.

Probably no bird labors more persistently in constructing a nesting site than these winged fishers. In the perpendicular side of a sand or gravel bank, they burrow horizontally with one or two upward turns to a depth of from four to six feet. Several burrows are often made, one of which is used by the male as sleeping quarters. At the end of the nesting burrow, a bowl-like place is scratched, and into this birds disgorge countless numbers of fish bones. These become bleached, and the six to nine pearly-white eggs may be found resting upon this crude nest of undigested matter. The eggs are usually laid in May and the period of incubation is two weeks. Under the name of *halcyon,* the Kingfisher was fabled by the ancients to build its nest on the surface of the sea, and to have the power of calming the troubled waves during its period of incubation; hence the phrase *"halcyon days."*

THE IVORY-BILLED WOODPECKER*

In size, though hardly in beauty, this is indeed the prince of woodpeckers, the largest of our North American species. Its length ranges from nineteen to twenty-one inches. There is one other woodpecker, called the Imperial, which is larger, measuring twenty-three or twenty-four inches in length.

The Ivory-billed is now rare, and is apparently restricted to the extreme Southern States, especially those bordering the Gulf of Mexico. It is also found in western Mexico. It is of a wild and wary disposition, making its home in the dark, swampy woodlands. The dense cypress swamps of Florida are one of its favorite haunts.

The nest of the ivory-bill is excavated in a tree, about forty feet from the ground, the cavity often being nearly two feet in depth. Three to six glossy, pure white eggs are laid.

This bird does not remain long in one place, and during the day ranges over an extended territory. Its call is a high, rather nasal yap-yap-yap, sounding in the distance like the note of a penny trumpet.

All woodpeckers are of value to the farmer. It has been shown that two-thirds to three-fourths of their food consists of insects, chiefly noxious. Wood-boring beetles, both adults and larvæ, are conspicuous, and with them are associated many caterpillars, mostly species that burrow into trees. Next in importance are the ants that live in decaying wood, all of which are sought by woodpeckers and eaten in great quantities.

IVORY-BILLED WOODPECKER.
(Campephilus principalis).
½ Life-size.

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HAIRY WOODPECKER.
(Dryobates villosus.)
⅔ Life-size.

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THE HAIRY WOODPECKER*

The geographical and the breeding ranges of the Hairy Woodpecker are practically the same. These include eastern North America from the southern provinces of Canada southward to the States bordering the Gulf of Mexico and those of the southeastern United States bordering the Atlantic Ocean. Though occasionally found in old orchards, its choice feeding grounds are the timbered regions of river banks and other bodies of water.

The hairy woodpecker is one of the most useful and valuable friends of human interests. Not only does it feed upon the larvæ that burrow in the wood and bark of our forest and orchard trees, but also upon beetles and other insects. It is only in the winter season, when its natural food is not readily obtained, that it gathers seeds and fruits. It never attacks a sound tree for any purposes, and the loss caused by the amount of useful grain destroyed is greatly overbalanced by the good that it does in the destruction of noxious insects.

Regarding the building of the nest, Major Bendire says: "Both sexes take part in the labor, and it is really wonderful how neat and smooth an excavation these birds can make with their chisel-shaped bills in a comparatively short time. The entrance hole is round, as if made with an auger, about two inches in diameter, and just large enough to admit the body of the bird; the edges are nicely beveled, the inside is equally smooth, and the cavity is gradually enlarged toward the bottom. The entrance hole, which is

not infrequently placed under a limb for protection from the weather, generally runs in straight through the solid wood for about three inches, then downward from ten to eighteen inches, and some of the finer chips are allowed to remain on the bottom of the cavity, in which the eggs are deposited. Both dead and living trees, are selected for nesting sites, generally the former.

DOWNY WOODPECKER

The Downy Woodpecker is often mistaken for the hairy woodpecker, from which it differs only in size and minor markings.

It ranges throughout eastern North America from Labrador to Florida. A rugged little climber, it is resident the year round wherever found. There are several forms of this species: the Southern downy, Gairdner's, Batchelder's downy, willow, and Nelson's downy woodpecker. It is like splitting hairs to distinguish one from the other, except that they are usually classed according to their locality or range. Practically every section of the United States and Canada contains one of the above forms.

Sociable little birds, during cold, wintry days they often visit the dooryards in company with chickadees and white-breasted nuthatches. Many observers attract these birds to their window-sills by tempting them with suet. They should be attracted to orchards by feeding them suet, etc., so as to have the benefit of their search for insects and their eggs and larvæ. This bird is highly beneficial to the interest of horticulture. Prof. Beal, of the Biological Survey, United

DOWNY WOODPECKER.
Life-size

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NUTTALL'S WOODPECKER.

Life-size

States Department of Agriculture, reports it as the most beneficial of all woodpeckers, in spite of the fact that it is also the smallest. Seventy-five per cent of its food consists of ants, beetles, bugs, caterpillars, and grasshoppers, partaking only sparingly of wild fruits.

The eggs are deposited on an accumulation of rotted chips and dead wood at the base of a hollow limb or tree trunk which is dead and often soft from decay. The eggs, like those of all other woodpeckers, are pure white, with a glossy surface.

THE NUTTALL'S WOODPECKER*

The range of Nuttall's Woodpecker is long and narrow. Lying west of the Sierra Nevada and Cascade mountain ranges, it extends from the southern portion of the State of Oregon southward through California into the peninsula of Lower California. It is a denizen of the lower foothills throughout the length of its range. It is partial to the oaks that grow in the vicinity of streams, though it also nests in the old or dead limbs of cottonwoods, elders, willows, and sycamores. As a rule, it avoids coniferous trees.

Nuttall's woodpecker not only nests in the dead limbs or stubs of the trees already mentioned but also in the giant cactus. The nesting hole is seldom more than a few feet above the ground. Both sexes assist in the work of excavating and also in the incubation of the eggs.

Like many other woodpeckers, this bird is a devoted parent, frequently permitting itself to be caught rather than leave its nest when it contains eggs or young.

Mrs. Florence Merriam Bailey gives an excellent account of the habits of this woodpecker, in her "Handbook of Birds of the Western United States." She says: "It has a nuthatch-like way of flying up to light on the under side of a limb, and when hanging upside down turns itself around with as much ease as a fly on a ceiling. At times the small Nuttall waxes excited, and shakes his wings as he gives his thin, rattling call. All his notes are thin, and his quee-queep has a sharp quality. His chit-tah is a diminutive of the ja'cob of the California woodpecker. He is a sturdy little fellow and in flight will sometimes rise high in air and fly long and steadily, dipping only slightly over the brush. He has the full strength of his convictions and will drive a big flicker from a sycamore and then stretch up on a branch and call out triumphantly. Two Nuttalls trying to decide whether to fight are an amusing sight. They shake their feathers and scold and dance about as if they were aching to fly at each other, but couldn't quite make up their minds."

THREE-TOED WOODPECKER

The Three-toed Woodpecker is resident through Canada and into northern United States. It has the peculiar structure of only three toes on each foot.

"It is a restless, active bird, spending its time generally on the topmost branches of the tallest trees, without, however, confining itself to pines. Its movements resemble those of the red-cockaded woodpecker. Like it, it will alight, climb along a branch, seek for insects there, and in a very few moments remove to another part of the same tree, or to

AMERICAN THREE-TOED WOODPECKER.
(Picoides americanus).
⅝ Life-size.

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YELLOW-BELLIED SAPSUCKER.
$\frac{3}{8}$ Life-Size.

another tree at more or less distance, thus spending the day in rambling over a large range. Its cries also somewhat resemble those of the species just mentioned, but are louder and more shrill, like those of some quadruped suffering great pain. It very frequently makes sorties after flying insects, which it secures in the air with as much ease as the red-headed woodpecker. Besides insects, it also feeds on berries and other small fruits.

"Its rapid, gliding flight is deeply undulated. Now and then it will fly from a detached tree of a field to a considerable distance before it alights, uttering at every dip a loud, shrill note.

"The nest of this species is generally bored in the body of a sound tree, near its first large branches. I observed no particular choice as to timber, having seen it in oaks, pines, etc. The nest, like that of allied species, is worked out by both sexes, and takes fully a week to complete, its usual depth being from twenty to twenty-four inches. It is smooth and broad at the bottom, although so narrow at its entrance as to appear scarcely sufficient to enable one of the birds to enter. Only one brood is raised in the season. The young follow their parents until autumn, when they separate and shift for themselves." (Audubon.)

YELLOW-BELLIED SAPSUCKER

The Yellow-bellied Sapsucker ranges throughout eastern North America, breeding in Massachusetts, Illinois, and north, wintering from Virginia to Central America.

This is the only sapsucker occurring east of the Great

Plains. In summer it may be found occasionally in the northern portions of Illinois and Indiana. Quite a few of the birds nest in the vicinity of Detroit, Michigan, and I have personally observed them during the breeding months in northern Wisconsin. Fifteen years ago the yellow-bellied sapsucker nested along the river bottoms of the Illinois and Kankakee rivers, but to-day they are rarely seen during the breeding season in this latitude. By many ornithologists the yellow-bellied sapsucker is considered the handsomest of our American woodpeckers.

The woodpeckers of this genus are the only ones to which the term sapsucker may with any propriety be applied. They lack the long, extensile tongue which enables the other species to probe the winding passages made by larvæ. The sapsuckers are found feeding largely upon the sap and inner bark of trees; they also feed upon insects attracted by the sap. In some localities they injure valuable timber by chipping off bark and girdling the trunk and larger limbs with small holes. This handsome bird devours many insects, but its fondness for the sap of trees, including apple and other orchard trees, with its habit of cutting out sections of the bark to obtain its favorite tipple, renders it injurious in some localities. It is one of a number of birds that are harmful and beneficial by turns, or according to locality. Little blame attaches to the orchardist who blacklists the sapsucker, but he should familiarize himself with the other woodpeckers, that he may distinguish this from other kinds.

The birds often excavate a nesting site in living trees, but in the mountainous regions of New Hampshire and

RED-BREASTED SAPSUCKER.
(Sphyrapicus ruber.)
Nearly Life-size.

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Maine the birds exhibit a decided preference for dead birches. The average height of the excavation from the ground is about forty feet. Many of the nests are gourd-like in shape, with sides very smoothly and evenly chiseled by both sexes, usually to the depth of about fourteen inches. Three to seven pure white eggs are laid.

THE RED-BREASTED SAPSUCKER*

The Red-breasted Sapsucker is a resident of the Pacific Coast, ranging from northern Lower California northward to southern Alaska. It extends its flight and breeds as far east as the Sierra Nevada and Cascade mountains. It belongs to the family of woodpeckers.

Like its eastern relative, the yellow-bellied sapsucker, it punctures trees, possibly in order to feed upon the exuding sap or the insects attracted by its flow. The adult birds are beautifully marked with crimson on the head and breast, while in the young the color is brownish and the yellow of the belly is wanting.

These birds seem to prefer aspen trees for their homes, selecting one which is a foot or more in diameter near the ground. They excavate a cavity in the trunk several feet from the ground, the door of which, a small round hole, less than two inches in diameter, seems far too small for the parent birds to enter.

These sapsuckers are watchful and devoted parents, and cases have been reported where the mother bird has been easily captured because of her refusal to leave her young.

As a rule, but a single brood is raised each season. There

are five or six eggs, and occasionally seven, in each set, which vary in form, though they are always of the ovate type. At times they are quite elongated. When fresh, the yolk may be seen through the thin shell, giving a pinkish shade to the egg. When the contents are removed the shell is white, showing some luster.

The food of this species, in addition to the sap and inner bark of the trees they puncture, if it is true that they use this as food, consists of ants, insect larvæ, moths, and butterflies, many of which are caught on the wing, and small fruits.

PILEATED WOODPECKER

The range of this noble bird was formerly the whole wooded region of North America.

"If the 'curse of beauty' be added to that of large size, the destruction of a bird is foredoomed. This magnificent black woodpecker, once common throughout the heavily timbered areas, has almost disappeared before the industrious axe and the all-conquering gun, and the day of the passing of the 'logcock,' or 'lumberjack,' is not far distant.

"In the spring of 1902, according to Mr. Sim, of Jefferson, Ohio, a pair of these birds nested within a mile of town. The nesting cavity was dug by the middle of April, in a beech tree, at a height of about thirty feet. Chips were strewn liberally over the ground below, and many showed characteristic chisel marks of the bird's powerful bill. During the nesting season the birds remained near, drumming, calling, and feeding. The flight, unlike that of other woodpeckers, is direct and not undulating.

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PILEATED WOODPECKER.
(Ceophloeus pileatus).
½ Life-size.

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RED-HEADED WOODPECKER.
Life-size.

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"The drumming song is a series of about twelve taps, increasing in rapidity and growing less in strength to the end. I have heard this woodpecker give three vocal songs or calls. One is an exultant, ringing laugh; at a distance this call sounds metallic, but when at close range it is the most untamably wild sound that I know among the bird-notes. Another call might be suggested by the syllables cow-cow-cow repeated indefinitely, but sometimes intermittently, resembling the flicker's call. When two birds approach each other they often carry on a wheedling conversation, analogous to the 'Wichew' note of the flicker, but it is so given as to lead one to believe that the birds have their bills closed while making the sound.

"In its search for food the logcock strikes deliberately, but with force, often giving the head a powerful twist to wrench off a piece of wood. Sometimes quite a large fragment is thrown back by a toss of the head. Much time is also spent about fallen tree-trunks, where, in addition to grub and other insect larvæ, it subsists largely upon ants." (Dawson.)

RED-HEADED WOODPECKER

The Red-headed Woodpecker, abounding throughout eastern North America, is readily recognized in the adult plumage by the red head and white under parts, with the steel blue and white covering. The red-headed woodpecker is found as far west as Colorado, sometimes California. In summer it may be met with as far north as Ontario and Quebec, but is rare east of central New York. It is a striking bird when seen at a distance moving about the

trunk of a dead tree or telephone pole. Usually the nests are cavities chiseled into dead tree-trunks, though the birds may use living trees. The young, in the first plumage, are marked by the absence of red on the head.

Woodpeckers generally are of great value in their protection to trees, but the red-headed woodpecker is of greatest value, as he enjoys nothing more than a meal of young English sparrows just out of the shell. These birds often wedge acorns into cracks in trees and later extract the kernel; or an acorn is sometimes pounded to a meal and eaten, or the bird awaits development of larvæ in the acorn and eats that. They often catch insects on the wing, as do flycatchers.

The birds often alight on a metal cornice or projection and call to their mates, alternately drumming and calling vocally.

The flight of all woodpeckers is characteristic; they pursue an undulating course, flying perhaps fifty feet until the wings close, and they drop a few feet, again regaining themselves. While generally regarded as migratory, if he finds plenty of food, such as beech nuts, he may winter in northern United States.

Four to six white eggs are deposited in cavity chiseled from a dead tree.

CALIFORNIA WOODPECKER

The California Woodpecker and a closely allied subspecies known as the ant-eating woodpecker are inhabitants of California. The plumage is chiefly black, while on the

CALIFORNIAN WOODPECKER.
(Melanerpes formicivorus bairdi).

RED-BELLIED WOODPECKER.

Melanerpes carolinus.

½ Life-size.

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crown is the customary scarlet patch common to the males of most woodpeckers.

The California woodpecker has the habit of storing away acorns almost as persistently as do our squirrels. The birds select partially decayed trees and perforate the bark and trunk with small holes, into which they securely wedge these acorns, feeding upon them, and especially the larvæ they contain, during the winter months. In New Mexico these birds seem partial to small oak groves. In the Catalina Mountains of Arizona they may be met with at an altitude of 4,000 feet, living both in the pine and oak groves. Frequently a natural cavity is used as a suitable site for the eggs and young. Perhaps their habit of drilling small holes for the storage of acorns causes this bird to become less active in chiseling a cavity large enough to contain a setting of eggs. When the birds excavate holes for nesting sites a situation on the under side of a limb is frequently chosen. Sometimes they successfully drill a hollow in a living tree.

Four or five eggs are laid in April or May.

RED-BELLIED WOODPECKER

The Red-bellied Woodpecker ranges throughout eastern United States, nesting north of Massachusetts and Minnesota, wintering from Virginia and Ohio southward.

"For the coincidence I shall not try to account, but it is a fact that whenever the bird-man clears the snow from a log where the wood-choppers have been at work, and sits down, after a long morning's work with the birds, to a shivering midwinter lunch, the red-bellied woodpecker, till

then silent, bestirs himself and begins to pout 'chow-chow-chow.' Careful attention discovers the pouting hermit taking his brief nooning in the middle heights of a twined tree-trunk, or else darkly silhouetted against the wintry sky. Here he hitches and grumbles by turns.

"To me there is something uncanny about this ascetic bird, who whiles away his winter hour in the seclusion of a narrow cell, and in spring, scarcely less unsocial, retires to the least frequented depths of the forest to breed. Far from the haunts of man, and secure in the protection of abundant leafage, the birds do unbend somewhat. At this season they have a chirruping cry, which only the experts can distinguish from the noisiest of the red-head's notes; and another, a very startling expression of mingled incredulity and reproach, 'Clark.' This is evidently analogous to the red-head's 'Queer.'" (Dawson.)

The nest is usually placed in holes some twenty feet from the ground, where four to six eggs are laid.

FLICKER

The red on the head, the black crescent on the cinnamon-brown breast, the yellow lining of wing flashing in undulating flight, and white spot on rump are striking field marks.

The Flicker, Yellow Hammer, Wake-up, or High-hold, known by no less than thirty-six names, is probably the commonest woodpecker on this continent. The northern or common flicker occurs in the eastern United States north of the Ohio River and west to the Rocky Mountains. It is a hardy bird, and, though migratory, does not pass beyond

FLICKER.
(Colaptes auratus).
¼ Life-size.

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the borders of the United States except during severe winters, when some of them may be met with in Central America and Mexico. Among the first harbingers of spring, the budding of the catkins and the flight of the flicker are conspicuous.

The males are droll creatures and so ardent in their wooing that they become unsuspicious of mankind. Three, and often five, yellow hammers may be seen ardently courting the same female, whose absence of red on the nape of the neck makes her identity certain. The flicker beats a rolling tattoo in spring. His vocal song proper is a rapid, oft-repeated "cuh-cuh-cuh." It also has a "weechew-weechew" song, from which comes its name "flicker." The quest of ants has led this bird to terrestrial habits, so that it seems to be gradually becoming a species of grouse. It is a very useful bird and should be protected, even though it may be fond of cherries.

In June, 1896, I noticed a flicker emerging from a hole in an apple tree. Examining the cavity, I found two eggs resting on bits of decayed wood fourteen inches below the entrance.

I removed one egg, leaving the other as a "nestegg"; returning day by day, repeating the operation during a period of forty days, when the female had deposited twenty-nine eggs. On one or two occasions there was an interval of three days between laying.

The nesting site is often a cavity which is originally dug by the birds in their quest for ants and larvæ. During the labor of excavation the season for maternal duties arrives, and the birds utilize the same tree on which perhaps half a

dozen woodpeckers have been more or less dependent for a living. Five to nine eggs are usually laid.

In the South Atlantic and Gulf states we have another form, slightly smaller than the northern flicker and a little darker in color. Colorado and the territory immediately westward is the home of the red-shafted flicker, a bird whose wing quills are bright crimson, instead of yellow.

CHAPTER XII

GOATSUCKERS, HUMMING-BIRDS, ETC.

Nighthawks, Whip-poor-wills, Swifts, and Humming-birds are found in the same order, though in different families. Nighthawks and whip-poor-wills belong to the goatsucker family. Only seven birds of this family reach North America. Most of them live in forests, perching lengthwise on the branches of trees, in imitation of knots. The nighthawk is often found in treeless regions as well. Color protection of all species is strongly marked. Birds of this family capture their insect prey on the wing, aided by their large mouth, and in some species further helped by the stiffened bristles at the side of the mouth. Most of the birds of this family utter wierd notes, especially the whip-poor-will. The feet are weak, but flight is strong.

Swifts secrete glue from the throat in order to fasten sticks together to make their nests. The young are fed by regurgitation. Swifts are diurnal, while goatsuckers are nocturnal. Swifts are generally gregarious. While formerly using hollow trees, they now use chimneys almost exclusively. They feed while flying, never alighting except in the chimneys. The resemblance to swallows is only superficial.

Humming-birds are confined to the New World. Of the four hundred known species, only one, the ruby-throated, nests east of the Mississippi River, though the rivoli may be

seen in eastern United States after nesting season. Humming-birds feed on the wing. While feeding on insects, they also partake of the nectar of the flowers, using long beak as tube. The flight is insect-like, and is unequaled for number of strokes of their short wings.

THE CHUCK-WILL'S-WIDOW*

In the wooded ravines and timbered swamps of the Southern States the Chuck-will's-widow tells of its presence by frequently calling its own name. It, with the whip-poor-will and the nighthawk, belongs to the family of goatsuckers, and is closely related to the swifts. The family includes about eighty-five species of these peculiar birds, nearly all being natives of the tropics, though nearly every part of the world has representatives. The range of the chuck-will's-widow is quite limited. It includes the states from Virginia and southern Illinois southward to the Gulf of Mexico, and through Mexico into Central America. It is also found in Cuba.

Chuck-will's-widow is a bird of the twilight and night hours. Silent during the daylight hours, its penetrating voice, which is remarkably strong, may be continuously heard in the regions that it inhabits during the evening hours and for a time preceding the returning light of day. It is said that on a still evening its call may be heard for more than a mile. In its large eyes and head, its loose and somber-colored plumage, its quiet flight and nocturnal habits, it resembles the owls.

While hunting for food the chuck-will's-widow flies low,

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CHUCK-WILL'S-WIDOW.
(Antrostomus carolinensis).
$\frac{3}{5}$ Life-size

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WHIPPOORWILL.
¾ Life-size.

often but a few feet above the surface of the ground. In this habit it differs from the nighthawk, which, like the swifts, seeks its food high in the air. Now and then it rests, perching on old logs or fences, from which it will launch forth in pursuit of prey which its keen eyes have sighted. During the day it roosts in hollow trees or upon a large limb in some densely shaded spot.

It does not attempt to build a nest. The two dull-white eggs are laid upon the ground or upon leaves in some secluded place in woods or thickets. It is said that this bird, when disturbed at its rest, will remove either its eggs or the young, as the case may be, to a place of safety by carrying them in its mouth.

WHIP-POOR-WILL

The Goatsuckers are inhabitants of both hemispheres. Whip-poor-wills breed practically from Virginia northward to the southern portions of Canada and westward across central United States to the states bordering the plains. Another species of goatsucker, the poor-will, inhabits the great plains and mountainous region to the Pacific Coast. The largest of the family, chuck-will's-widow, occurs in the South Atlantic States.

No order among the feathered tribe shows a greater expanse of mouth. The insectivorous food is caught on the wing. The lining of the mouth and throat is sufficiently adhesive to hold the moths and other insects which they capture on the wing.

We see the nighthawk and hear the whip-poor-will. Anyone who has not heard the notes of this bird may never

identify the author, whose name is taken from its notes. Much is said of the whip-poor-will's song, both in prose and poetry. The vocal notes are several shrill whistles repeated rapidly, and a better interpretation may be had by repeating the syllables "Pip-er-rip" rapidly in succession several times, not a mournful or melancholy sound, as one might infer from the name. This whistle is uttered by the bird while perched on a log or horizontally on a limb. The head is moved from side to side, causing the sound to vibrate from the woodland in waves.

These birds do not perch crosswise of a limb, but their bodies are parallel with the object on which they rest, head outward, to resemble a knot on the branch. Their feet are extremely weak, and the toes are not strong enough to allow the bird to grasp and fasten the claws to any perch.

In migration the birds travel in small flocks, and I have frequently flushed a dozen whip-poor-wills from the underbrush in April while looking for woodcocks. They do not fly until one is almost upon them, when they rise and move noiselessly through the air, soon alighting on a fallen branch.

The two eggs are laid on a bare leaf in wet places where the earth is partially shaded, thus producing a mottled effect which blends effectively with the birds' plumage.

The young of the whip-poor-will are covered with fine down of chestnut-brown. The spacious mouth of the parent enables her to remove her eggs to another spot if disturbed. Like most other birds which hunt by night, the eyes are exceedingly large for the size of the bird. The wings are long and narrow, and when flat at the sides of the bird touch the ground or the object on which the bird is perching.

NIGHTHAWK.

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NIGHTHAWK

The Nighthawk, or Bull Bat, often miscalled whip-poor-will, migrates in immense flocks, arriving in the Great Lakes region about the second week in May. Many pairs spend the summer in thickly settled districts, even raising their young on the roofs of residences and office buildings in cities. Open places, rocky hillsides, and stony pastures are favorite haunts, furnishing ample protection for the dull-plumaged bird. The name nighthawk is rather misleading, as the birds are not hawks, and seem to be equally at home on sunny days, cloudy weather, or after dusk.

In June, 1910, I found two young on a bare, flat limestone slab, where the only concealment was by means of protective coloration. The little fellows harmonized perfectly with the light and shade effect produced by old mullein stalks. The parents were very demonstrative about the young, the female feigning lameness.

The nighthawk and the whip-poor-will are often confounded or considered the same species. A careful comparison will at once show a very decided difference. The large white patches on the five outer primaries of the wings of the nighthawk are striking field marks in flight, resembling tattered holes. At twilight, or on cloudy days during summer months, great troops of nighthawks may be seen high in air over forest or town in search of insects, performing their wonderful evolutions and uttering their peevish cries, or swooping down with their strange booming or rumbling sound. Thus they continue till the gloaming merges into

darkness and their flight is seen no longer. The booming noise is made by the wind passing through the primaries in their mad plunge towards the earth. Their food is entirely insectivorous, hence it is one of our most useful birds.

The nighthawk, like other members of the family, rests on branches of trees, perched lengthwise with head outward, resembling a knot on the tree. On the prairies it roosts on the bare earth, where the color perfectly harmonizes with the surroundings.

CHIMNEY SWIFT

The Chimney Swift ranges throughout eastern North America, breeding from Florida to Labrador, wintering in Central America. These birds, commonly called the chimney swallows, are powerful fliers, and their wings, in proportion to their bodies, are probably longer than those of any other American bird. One of the best examples of the adaptability of the tail may be seen in the way it serves as a prop or support to the bird, whose feet are otherwise too feeble securely to support the owner. Swifts are frequently seen flying in groups of three, and naturalists have concluded that they may be polygamous.

One of their most remarkable traits is the manner in which they construct their nests. In former years swifts nested in hollow trees or in crevices in the rocks and cliffs; at sundown immense numbers could then be seen pouring into the top of a hollow tree, just as now hundreds will congregate in a chimney.

Western North America, particularly the mountainous regions, is still the home of several species of swifts, whose

CHIMNEY SWIFT.
⅔ Life-size.

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nests are fastened to the perpendicular walls of old missions or between crevices in the rocks. Occasionally an old, abandoned well is used.

It is noticeable that swifts fly higher during clear, sunshiny weather, and an extreme or abrupt change in the weather may be safely forecasted when the birds are noticed skimming low over the roofs.

Their only note is an unmusical twitter, which they utter when flying at top speed. The shafts in the tail extend fully one-quarter of an inch beyond the feathers, but these are not visible in flying; neither is the insignificant bill; so that one discerns merely a pair of long wings attached to a little body, and the bird might easily be mistaken for a bat.

Swifts are closely allied to nighthawks and the whip-poor-wills. They exhibit little intelligence, except in the construction of their nests, and, were it not for their abundance in most sections, the birds would be little noticed by the casual observer. Their flight, while strong and powerful, is not picturesque or graceful. The wing-beats are short and rapid, but the bird sometimes soars when about to enter a chimney. The outline against the sky reminds one of a drawn bow and arrow.

Accommodating itself to the advance of civilization, the nests are now usually placed on the inside of brick chimneys, though they may be found firmly glued to the inside of a barn or outbuilding. The nests are composed of small twigs which the birds snap with beak from the trees while in flight. These twigs are of about equal length, and are fastened to each other by a glue in the form of saliva secreted by the birds themselves from the throat. The nests are attached to

the brick or woodwork so firmly that to remove the semi-circular basket of twigs from its original place will invariably result in a portion of the brick chimney or woodwork adhering to the nest proper. They are closely allied to the Chinese swift that secretes the edible nest, regarded by the Chinese as their greatest delicacy. This interesting little bird may be studied best by placing a mirror at an angle in the chimney where stovepipe enters.

The chimney swift lays from two to five pure white, long, fragile eggs. Swifts are decidedly insectivorous, feeding only on the wing. Rarely do they alight to rest, and then only in chimneys, so that it may be conservatively stated that a swift spends the entire time after sunrise until sunset on the wing, except when maternal duties demand the attention.

HUMMING-BIRDS*

It has been said that what a beautiful sonnet is to the mind, one of these fairy-like creations is to the eyes. This is true even in the case of mounted specimens, which must necessarily have lost some of their iridescence. Few can hope to see many of them alive. The gorgeous little birds are largely tropical, the northern limit of their abundance as species being the Tropic of Cancer. They are partial to mountainous regions where there is diversity of surface and soil sufficient to meet their needs within a small area. The highlands of the Andes in South America are the regions most favored by a large number of species.

The eastern part of the United States has but one representative of the Humming-bird family, and only seventeen

HUMMINGBIRDS.
Life-size.

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FROM COL. CHI. ACAD. SCIENCES.

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RIVOLI HUMMINGBIRD.
(Eugenes fulgens.)
About Life-size

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species have been found within the limits of the country. Most of the hummers are honey-lovers, and they extract the sweetest juices of the flowers.

The "soft susurrations" of their wings as they poise above the flowers, inserting their long beaks into tubes of nectar, announce their presence.

The nests of the humming-birds are of cup shape and turban shape, are composed chiefly of plant-down, interwoven and bound together with spider webs and decorated with lichens and mosses. Usually the nest is saddled upon a horizontal or slanting branch or twig.

"Dwelling in the snowy regions of the Andes are the little gems called Hill-stars," says Leander S. Keyser, "which build a structure as large as a man's head, at the top of which there is a small cup-shaped depression. In these dainty structures the eggs are laid, lying like gems in the bottom of the cups, and here the little ones are hatched. Some of them look more like bugs than birds when they first come from the shell."

THE RIVOLI HUMMING-BIRD*

The Rivoli, or the Refulgent Humming-bird, as it is frequently called, has a very limited range. It is found in the "mountains of southeastern Arizona, southwestern New Mexico, and over the table lands of Mexico," southward to Nicaragua. It is one of the largest and most beautiful of the humming-birds that frequent the United States. Its royal appearance led Lesson, in the year 1829, to name it Rivoli, in honor of M. Massena, the Duke of Rivoli. It is

noted "for the beauty of its coloring and the bold style of its markings."

Mr. H. W. Henshaw, who was the first scientist to discover that the Rivoli was a member of the bird fauna of the United States, thus describes its nest: "It is composed of mosses nicely woven into an almost circular cup, the interior possessing a lining of the softest and downiest feathers, while the exterior is elaborately covered with lichens, which are securely bound on by a network of the finest silk from spiders' webs. It was saddled on the horizontal limb of an alder, about twenty feet above the bed of a running mountain stream, in a glen which was overarched and shadowed by several huge spruces."

The note of this bird gem of the pine-clad mountains is a "twittering sound, louder, not so shrill, and uttered more closely than those of the small hummers."

As the Rivoli hovers over the mescal and gathers from its flowers the numerous insects that infest them, or as it takes the sweets from the flowers of the boreal honeysuckle, one is reminded of the words of the poet:

> "Art thou a bird, a bee, or butterfly?"
> "Each and all three — a bird in shape am I,
> A bee, collecting sweets from bloom to bloom,
> A butterfly in brilliancy of plume."

RUBY-THROATED HUMMING-BIRD

The Ruby-throated Humming-bird is decidedly the smallest feathered creature inhabiting North America at large east of the great plains; it winters in southern Florida

RUBY-THROATED HUMMINGBIRD
About Life-size.

and Central America. Many of us look upon the humming-bird as a migrant of the flower bed and gardens, where they may be seen poised in air, moving their tiny wings so rapidly as to show only a blurred outline. The musical hum of the vibrating wings gives rise to the name. While thus poised it inserts the slender, tube-like bill into the long blossoms of the trumpet-creeper and other flowers for the nectar. Their fondness for the honey often tempts the little bird to nest in shade trees or saplings in close proximity to gardens, though we are apt to encounter these birds in our timbered areas far from the habitation of man, where they are earning their livelihood, as all hummers originally did, by capturing minute insects.

Their note is a kind of squeak, or chatter, less musical than the hum of its wings. The Rocky and Sierra Nevada mountains of North America are the homes of many varieties of humming-birds, all of which are migratory, and in some instances they may be found breeding in colonies. The males of the various species are conspicuously colored about the head with some shade of red or purple.

Ruby-throated humming-birds are aggressive about their nesting sites and frequently disclose the presence of their abode by buzzing about the head of the intruder. I have seen the females fly with full force to about twelve or sixteen inches above the nest, when the flight is suddenly checked and the bird descends like a parachute onto her nest. While the ruby-throat is the only humming-bird nesting east of the Mississippi, the rivoli wanders east of the Mississippi after nesting.

The nest of the ruby-throated is a marvel in bird archi-

tecture. It is usually placed on a horizontal limb in a deciduous tree on timbered hillsides or along streams, and sometimes about gardens. Externally the nest is covered with small lichens, which the bird removes from the bark of dead timber. These lichens are held in place by spider webs, which the birds carefully weave about the nest. Down from the cottonwood and willow is used as a lining. Into this dainty receptacle two long, narrow white eggs are laid. Two broods are reared in a season and the birds frequently use the same nest for both broods.

THE BLACK-CHINNED HUMMING-BIRD*

The Black-chinned Humming-bird has a long and narrow range extending along the Pacific Coast from southern British Columbia southward into southern Mexico, where it passes the winter. Eastward its range extends to western Montana, western Colorado, New Mexico, and western Texas. In some portions of this range it is very abundant, while in others that are apparently as well suited to its habits it is rare, or never seen at all.

This humming-bird, which also bears the names purple-throated and Alexandre's humming-bird, is very similar in its habits to our eastern ruby-throat. Even in its call notes and antics while wooing its mate it is almost a counterpart of the eastern species.

Next to the Anna's humming-bird, the black-chinned is the most conspicuous of all the humming-birds that frequent southern California. At twilight it is a frequent visitor to the orange groves, and later, as night approaches, it retires

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BLACK-CHINNED HUMMINGBIRD.
(Trochilus alexandri.)
About Life-size.

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ANNA'S HUMMINGBIRD.
Life-size.

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to the mountain sides, where, with numerous individuals of its own kind and other birds, it finds a resting-place through the dark hours.

The nests are delicate affairs, and in many cases resemble small sponges, readily assuming their normal form if the edges are pressed together. The inner cup is seldom more than one inch in diameter. The walls are usually composed of the down of willows. This is firmly woven by an unsparing use of spider web. Usually a few small leaves and scales of willow buds are attached to the outer face, evidently to give it stability.

It has been stated that humming-birds invariably lay but two eggs in each set. The female black-chinned hummingbird seems to be at least one of the exceptions that prove the rule. Major Bendire says that "nests of this species now and then contain three eggs, all evidently laid by the same female, and such instances do not appear to be especially rare."

THE ANNA'S HUMMING-BIRD*

Such a dainty dress as that worn by most of the humming-birds deserves constant attention. Appreciating this, these little lovers of sunshine are very fond of preening their beautiful feathers.

Although the nectar of flowers forms a large part of their food, it has been shown that insects also form no inconsiderable portion.

The high degree of intelligence possessed by the humming-birds is shown in the construction of their nests. Some of the species make the nests "of such form or material as

will serve to imitate natural excrescenses of a branch, such as a knot or a pine cone." Other species make a hammock-like nest that they suspend from cliffs by attaching spiders' webs. The eggs of the humming-birds, almost invariably two in number, are white and free from spots.

The Anna's Humming-bird of our illustration is one of the most striking of those best known. It is, perhaps, the most beautiful of the species that frequent the United States. It is a native of California and in its migrations passes southward through Arizona to the table lands of Mexico. It is also found in Lower California.

The head and ruff of the male have a lustrous, metallic, purplish-red color. The female is bronze-green above, though the top of the head is sometimes brownish, showing but little if any metallic luster. Both sexes vary somewhat in color. This is especially true of the males, some individuals having more purplish-red on the crown and throat than others.

This species inhabits a metal-producing region, and it is an interesting fact, as cited by Mr. Gould in his *Monograph of the Humming-birds,* that "those districts or countries having a metalliferous character are tenanted by species of humming-birds which are more than ordinarily brilliant and glittering."

THE BROAD-TAILED HUMMING-BIRD*

If we desire to study the Broad-tailed Humming-bird in the regions that it frequents we must journey to the mountainous district of western North America. Here it may be

BROAD-TAILED HUMMINGBIRD.
(Selasphorus platycercus.)
Life-size.

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found in large numbers, for it is the most common of all the species that frequent the mountains. It seeks its food of insects and honey from the flowers of a prolific flora extending from Wyoming and Idaho southward through Colorado, New Mexico, Arizona, Texas, and over the table lands of Mexico into Guatemala. It is pretty generally distributed throughout the various mountain systems between the eastern slopes of the Rocky Mountains and the Sierra Nevadas.

The broad-tails are very abundant in the balsam and pine belts of the San Francisco Mountains of Arizona, where their principal food plants are the scarlet trumpet flower and the large blue larkspur.

It seems strange and unnatural that so delicate a bird and one so highly colored should frequent localities where periods of low temperatures are common. Yet the broad-tailed humming-bird prefers high elevations and has been known to nest at an altitude of eleven thousand feet, and it seldom breeds at places lower than five thousand feet.

The males leave for their winter home very early in the season. Usually this migration takes place very soon after the young birds leave their nests. Mr. Henshaw attributes this movement of the males to the fact that their favorite food plant, the Scrophularia, begins to lose its blossoms at this time. He says: "It seems evident that the moment its progeny is on the wing and its home ties severed, warned of the approach of fall alike by the frosty nights and the decreasing supply of food, off go the males to their inviting winter haunts, to be followed, not long after, by the females and young. The latter, probably because they have less strength, linger last."

THE RUFOUS HUMMING-BIRD*

This hardy little "Hummer," which is even smaller than our well-known ruby-throated humming-bird, is weighted with a number of popular names. Among these are the "rufous-backed humming-bird," the "ruff-necked honey-sucker, or humming-bird," the "rufous flamebearer," and the "cinnamon hummer."

The Rufous is probably the most widely distributed of all the humming-birds. Its range extends throughout western North America. It breeds from the higher mountains of southern California northward, near the coast, to southern Alaska. In its migrations it flies eastward to Montana, Colorado, and thence southward through New Mexico to western Texas. In fact, during this period it frequents the eastern slopes of the Rocky Mountains, adding beauty to this wild region. Its winter home is chiefly in Mexico and Lower California.

The nest of the rufous humming-bird resembles those of many other species of hummers, and it is very much like that of the Anna's humming-bird. The framework is composed of delicate tree mosses and fine bark fiber, the outer face of which is sometimes adorned with lichens, though not so profusely as is that of the Anna's, and fastened together with spiders' webs and the silky threads from cocoons. It is lined with the fine cotton down of plants, especially that of the willow, and the pappus of the Compositæ. These nests seem large when compared with the size of the bird. The average nest measures about one and one-half inches in the

RUFOUS HUMMINGBIRD
Life-size.

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ALLEN'S HUMMINGBIRD.
(Selasphorus alleni).
Life-size.

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outer diameter and one and one-fourth inches in depth. "Their nesting sites may be looked for in low bushes, as well as on the horizontal limbs of trees at various distances from the ground."

ALLEN'S HUMMING-BIRD*

The Humming-birds, with their varied beauties, constitute the most remarkable feature of the bird-life of America. They have absolutely no representatives in any other part of the world, the swifts being the nearest relatives they have in other countries. Mr. Forbes says that they abound most in mountainous countries where the surface and productions of the soil are most diversified within small areas. They frequent both open and rare and inaccessible places, and are often found on the snowy peaks of Chimborazo as high as sixteen thousand feet, and in the very lowest valleys in the primeval forests of Brazil.

These birds are found as small as a bumblebee and as large as a sparrow. The smallest is from Jamaica, the largest from Patagonia.

Allen's hummer is found on the Pacific Coast, north to British Columbia, east to southern Arizona.

Mr. Langills, in *Our Birds in Their Haunts,* beautifully describes their flights and manner of feeding. He says: "There are many birds the flight of which is so rapid that the strokes of their wings cannot be counted, but here is a species with such nerve of wing that its wing-strokes cannot be seen. 'A hazy semi-circle of indistinctness on each side of the bird is all that is perceptible.' Poised in the air,

his body nearly perpendicular, he seems to hang in front of the flowers which he probes so hurriedly, one after another, with his long, slender bill. That long, tubular, fork-shaped tongue may be sucking up the nectar from those rather small cylindrical blossoms or it may be capturing tiny insects housed away there. Much more like a large sphynx moth hovering and humming over the flowers in the dusky twilight than a bird appears this delicate, fairy-like beauty.

SCISSOR-TAILED FLYCATCHER.
(Milvulus forficatus).
⅗ Life-size.

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CHAPTER XIII

FLYCATCHERS

FLYCATCHERS are songless perching birds; not that they are voiceless, but the vocal organs are not so highly developed as those of other perchers. This family is peculiar to America, as the Old World flycatchers differ so radically from the family found in the New World as to constitute a different family. Flycatchers are mostly tropical, thirty-five species being found in the United States. Highly migratory, these insectivorous birds seldom appear on their breeding-grounds until the foliage is well under way and insect life abundant. Flycatchers, with their dull plumage, are generally of solitary disposition; they perch in some conspicuous place, where they dart out after passing insects, then return to the same perch. They are highly beneficial to agriculture and horticulture.

SCISSOR-TAILED FLYCATCHER

A singularly attractive bird, readily recognized by its remarkable tail, it is common in Texas, Oklahoma, and Arkansas, extending the range irregularly into many of the more eastern and more northern states. In Texas these birds may be seen in great numbers perched on the telephone wires. They are increasing in number, a fortunate circumstance, as Texas is scourged with insects. This bird keeps up the reputation of the family by living peaceably

with its neighbors of smaller birds, while boldly driving away birds of prey.

Nests are often placed in mesquite bushes, where soft substances, such as cotton, wool, and rags, are incorporated in the structure. Four eggs, taken May 23, 1901, at Navasota, Texas, were placed forty-five feet from the ground in a nest loosely made of grass, weeds, and stems.

KINGBIRD

The Kingbird, or Bee Martin, abundant about the Mississippi Valley and Great Lakes region, ranges as far north as New Brunswick and Manitoba, wintering in Central and South America. The range extends as far west as the Rocky Mountains, where it is replaced by the Arkansas kingbird. The extreme southern portion of the United States is the home of the gray kingbird, a species resembling our common kingbird in both appearance and habits. The kingbird appears as a soberly plumaged bird, with a large tail tipped with white. On close inspection we discover a beautiful orange crown, but this color is confined to the base of the feathers on the top of the head, and, therefore, is not distinguishable as a field mark.

Kingbirds are restless and aggressive, attacking crows, herons, and hawks, sometimes alighting on the backs of these large birds and tormenting them while the intruders beat a hasty retreat. They seldom molest the cunning catbird, for, as one writer states, "Kingbirds become nearsighted when attempting to pursue this retiring bird of the thrasher family." One bird-observer tried to test the king-

KINGBIRD.
⅛ Life-size.

FROM COL. CHI. ACAD. SCIENCES

ARKANSAS KINGBIRD.
(Tyrannus verticalis).
¾ Life-size.

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bird's pluck by flying a kite directly over a tree containing the nest. As the kingbird approached the kite the observer gradually pulled the cord until the pursuer was almost upon the object, then suddenly released the cord, and the kingbird, unable to check his flight, went head first through the paper covering. This unexpected experience completely outwitted the saucy flycatcher, which withdrew from the scene.

These birds subsist entirely upon insect life, frequently living about the habitations of man. Farmers are inclined to kill these birds because they destroy bees. Examinations made by several of our Government experts disclose the fact that, of the bees consumed by the kingbird, ninety-eight per cent are drones. The bird is usually after the moths which infest the hives; it is, therefore, a friend of the bee-keeper; it is, in fact, one of our most useful birds and deserves full protection. It is interesting to watch it dash after passing insects, snapping them up and returning to same perch, usually a dead limb.

The nests are bulky, composed of hay, twine, vegetable down, and any soft substance available. The lining is of finer material. Often the nests are placed in fruit or shade trees, at comparatively low elevations. Three to five creamy-white eggs, handsomely speckled with lilac and purple, are laid.

ARKANSAS KINGBIRD

The Arkansas Kingbird, a handsomer species than our common kingbird, inhabits the United States from Kansas westward to California. Unlike our eastern species, it does

not seek the habitation of man, but retires to the uncultivated sections of the country, and is partial to the patches of oak or orchards overlooking the plains. Great insect-destroyers, like all other flycatchers, their process of assimilation is so rapid that one can scarcely realize the quantity of winged pests they daily consume.

The Department of Agriculture made a careful examination of the crops of sixty-two of these beneficial birds, finding nearly thirty honey bees, only one of which was a worker.

The Arkansas kingbirds sometimes nest in odd situations about fences or stumps, but usually they nest in a low tree. Three to five light green eggs, spotted with purple, are deposited in bulky nests composed of weed stems, wool, and hair.

ASH-THROATED FLYCATCHER

The Ash-throated Flycatcher is very similar to our crested flycatcher of the eastern United States. The range of the ash-throated is west of the Rocky Mountains, where they are comparatively common in Utah, Colorado, Nevada, and Oregon. A shy bird of retiring habits, it prefers the solitude of deep shady forests, where the insect food of this useful bird abounds. It is usually sole possessor of the tree in which its nest is built. Like the kingbird, this beautiful flycatcher is pugnacious, attacking all feathered intruders when they appear near the old cavity containing the nest.

Old hollows, formerly used by squirrels or woodpeckers, are favorite nesting sites. The eggs, like those of the crested

ASH-THROATED FLYCATCHER.
⅞ Life-size.

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PHOEBE.
(Sayornis phoebe).
½ Life-size.

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flycatcher, are handsome and peculiar in markings. Four to five creamy eggs, marked with purple streaks, are laid, usually in June.

PHOEBE

The Phœbe, often called Pewee and Bridge Bird, was formerly the most familiar of our flycatchers. It arrives in the Central States and Great Lakes region in advance of most other insectivorous birds. Frequently the appearance is a little premature, as our climate is subject to severe changes, and it may find few insects. The breeding range extends as far north as the Hudson Bay region and west to Kansas and Nebraska. In winter it is found from North Carolina to Cuba and Mexico.

The note is a plaintive "phœ-bee" accompanied by a jerking of the tail. Sociable birds, they take readily to the habitations of man, nesting about the porches in corrals and under bridges. They do not possess the aggressiveness typical of the kingbird and crested flycatcher, but remain patiently on some twig or fence post, darting out at the insects which come within range of their sharp eyes. These highly beneficial birds are far less common than formerly, due largely to parasitic insects which often cause the death of the offspring; often when rearing the second family the quarters are for this reason changed. The English sparrow is another cause of the lessened numbers of these birds, which now seldom build about outbuildings, as formerly, but select bridges, where sparrows are less in evidence.

Fifty years ago ornithologists described the eggs as pure white, but they are evidently undergoing a change, as few

nests now contain immaculate eggs. One or two, if not all in the set of four or five, have light reddish specks, and the background is creamy instead of pure white. Two or three broods are reared in a season.

OLIVE-SIDED FLYCATCHER

The Olive-sided Flycatchers, though comparatively rare in all sections of the United States, still range over practically the entire continent from the Atlantic to the Pacific and as far north as Greenland. Their breeding-grounds are coniferous forests, usually in mountainous regions or low, swampy woods. In the Great Lakes region the bird is less common than in the New England States and through the White and Green mountain regions of New Hampshire and Vermont. In feeding these long-winged birds usually resort to a high branch, from which they dart out after every passing insect, returning to the same perch.

The nest of moss and evergreen twigs is usually placed high up in a clump of evergreen. The background of the eggs is a beautiful deep creamy yellow, and the markings appear in the form of specks and spots of purplish-brown and lilac, particularly at the larger end.

WOOD PEWEE

A sober-plumaged little bird common in eastern North America from the Gulf States northward into the southern half of Canada, while the range in latitude is from the Atlantic to the great plains, wintering in Central America.

OLIVE-SIDED FLYCATCHER.
About Life-size

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WOOD PEWEE.
⅔ Life-size.

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Many are familiar with the melancholy notes of this little bird, but perhaps half of the casual observers are personally unacquainted with the author. The sad, sweet, prolonged note, "pee-wee-peer," is uttered at various times throughout the day. "His pensive, gentle ways are voiced by his sad, sweet call, 'pee-a-wee.' The notes are as musical and restful, as much a part of Nature's hymn, as the soft humming of a brook. All day long the pewee sings; even when the heat of summer silences more vigorous birds, and the midday sun sends light-shafts to the ferns, the clear, sympathetic notes of the retiring songster come from the green canopy overhead, in perfect harmony with the peace and stillness of the hour." (Chapman.)

These little birds feed largely upon insects, hence are of great economical value. They are decidedly partial to warm weather, not arriving from the South until May, when the foliage is quite dense and the damp woodlands and shady groves abound in minute insect life.

When making his first observations of birds the writer found the Wood Pewees common in the apple orchards about the Great Lakes region. The nests are usually cunningly concealed on low horizontal branches. Moss and lichens gathered from dead limbs and fence rails covered the outside of the nests, and these blend so cleverly with the limb on which they are saddled that detection is difficult. Ofttimes while searching for the nest both birds remain close by, calling in their sweet but mournful tones. The little nests are lined with fine grass and stems and usually contain three cream-colored eggs marked about the larger end with spots of lilac and purplish-brown.

YELLOW-BELLIED FLYCATCHER

The Yellow-bellied Flycatcher breeds from Massachusetts to Labrador, and winters in Central America.

The Empiconaces, or gnat-kings (as the Greek name signifies), as a group offer peculiar difficulties to the bird student. Although separated into many species, the distinctions are so fine and the birds in the hand really look so much alike that their identification is often involved in doubt and confusion.

"The keys to an acquaintance with the four species of 'gnat-kings' which occur in the East are to be found in the characteristic notes or haunts of each. The species under consideration is the least known of the four. It is found in central United States only during migrations, when it is very quiet and very secretive. Dr. Wheaton says of its habits: 'It is seldom found perched near the extremity of limbs watching for or capturing flying insects, but it is generally seen in the midst of a low thicket or fence row, and at the first intimation that it is an object of observation seeks further concealment by hiding near the ground and remaining motionless. None of the family are such adepts at concealment, its habits in this respect resembling those of the Connecticut and mourning warblers.'

"The ordinary note of this bird is described as 'an abrupt pse-ek, almost in one explosive syllable,' in which case it cannot be so unlike the familiar 'cle-otip' note of the Acadian flycatcher. It has, however, a more distinctive call —'a soft, mournful whistle consisting of two notes, the sec-

YELLOW-BELLIED FLYCATCHER.
(Empidonax flaviventris).
About Life-size.

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GREEN-CRESTED FLYCATCHER.
(Empidonax virescens).
Life-size.

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ond higher pitched and prolonged, with rising inflection, resembling, in a measure, chu-e-e-p.'" (J. Dwight, Jr.)

ACADIAN OR GREEN-CRESTED FLYCATCHER

The Acadian Flycatcher, or Green-crested Flycatcher, ranges throughout eastern North America to Ontario, wintering in Central America.

In low, damp woodlands the Acadian flycatcher chooses to spend the summer. Within the shadow of a single wood it finds its mate, rears its young, and gathers strength for the return to winter quarters in Central America.

The first notice which we have of the bird's arrival, some time during the last week in April, is a fairy sneeze, heard in the depths of the wood, "Cleotip." This note comes not from the tip of some dead limb in full view, as would be the case with other flycatchers, but from a clear space on some lower limb. The bird delivers his salutation with apparent effort, and he jerks his tail at the same time by way of emphasis. His repertory of song contains no other notes save a low humming titter of adulation, common to the little flycatchers, and a sharp scolding note.

It is not altogether unusual to find the Acadian flycatcher frequenting second-growth clearings and the woodsy borders which face damp brush lots, but he is more commonly found along some unfrequented wood-road, or in the gloomy heart of the forest. Here he waits for mosquitoes and midges, darting at them suddenly from his perch, making a quick turn while bringing his mandibles together with a click.

Here, too, in some dim aisle of the forest, from the feathery tip of a branch, a frail cradle is swung. It is a shallow saucer of fine twigs, leaf-stems, or the stalks of some slender vine, made fast by the edges to forking twigs or half supported by them. Usually the materials are loosely interwoven and bound together by cobwebs. Occasionally the affair is so careless that it merits Dr. Wheaton's comparison, "a tuft of hay caught by the limb from a load driven under it." Into the frail saucer three eggs are commonly placed. Many eggs must be lost each season, for any considerable wind would upset them. (Dawson.)

TRAILL'S FLYCATCHER

In northern Illinois and Indiana Traill's Flycatcher is common. It is found generally distributed throughout North America, breeding from northern Illinois and northern New England to Alaska, and wintering in Central America. Considerable controversy has arisen during the last ten years as to whether the lower part of the Great Lakes region is the home of Traill's flycatcher or a closely allied sub-species called the Alder flycatcher. However, both have the same habits and their difference is hardly distinguishable except to the specialist who might have several specimens of each before him for comparison. Traill's flycatcher is a rather retiring little bird inhabiting second-growth in wet places, often along streams or on the edges of our small inland lakes.

How clearly the disposition of our birds is foretold by the position in which they carry their tails! The drooping

TRAILL'S FLYCATCHER.
Life-size.

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VERMILION FLYCATCHER.

$\frac{3}{4}$ Life-size.

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tails of the wood pewee, phœbe, and Traill's flycatcher indicate a rather pensive and demure disposition, in striking contrast to the demeanor of the nervous insectivorous warblers that move from branch to branch, impulsively jerking their tails from side to side.

Traill's flycatcher is one of the last birds to join us in the spring. Like the humming-bird and scarlet tanager, it moves northward leisurely, not arriving in the Great Lakes region until well along in May.

The birds feed entirely on insects, which they capture on the wing, usually by darting from their perch at every passing fly or bug, many of which are too small to be distinguished by the naked eye, so they are highly beneficial.

While fairly common in Ohio and the New England States, their presence is seldom suspected, as this bird of dull plumage appears to avoid publicity by feeding in shaded places where the verdure is dense and mosquitoes abound.

The beautiful little nest, usually placed in a fork of an upright branch not more than five to ten feet above the ground, is made of vegetable fiber, stems, Indian hemp, and grass, lined with fine, round grass stems. Three and four cream-colored eggs, daintily speckled around the larger half with light red, are laid about the second week in June.

THE VERMILION FLYCATCHER*

Thickets along water-courses are favorite resorts of this beautiful flycatcher, which may be seen only on the southern border of the United States, south through Mexico to

Guatemala, where it is a common species. Mr. W. E. D. Scott notes it as a common species about Riverside, Tucson, and Florence, Arizona. Its habits are quite similar to those of other flycatchers, though it has not been so carefully observed as its many cousins in other parts of the country. During the nesting season the male frequently utters a twittering song while poised in the air, in the manner of the sparrow hawk, and during the song it snaps its bill as if catching insects.

The Vermilion's nest is usually placed in horizontal forks of rattan trees, and often in mesquites, not more than six feet from the ground; they are composed of small twigs and soft materials felted together, with the rims covered with lichens and the shallow cavity lined with a few horse or cow hairs. Dr. Merrill states that they bear considerable resemblance to nests of the wood pewee, in appearance and the manner in which they are saddled to the limb. Nests have been found, however, which lacked the exterior coating of lichens.

Three eggs are laid of a rich creamy-white, with a ring of large brown and lilac blotches at the larger end.

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HORNED LARK.
½ Life size.

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CHAPTER XIV

CROWS, JAYS, ETC.

THE Horned Lark, the only representative of the lark family found in America, is closely allied to the skylark of the Old World. Larks are terrestrial birds, their colors harmonizing with the prairies where they are found. Except when nesting they are gregarious.

Crows, Jays, Magpies, and Nutcrackers, all members of the Corvidæ family, are omnivorous feeders, living upon both animal and vegetable foods. Many of them are not migratory, while others are migratory to a limited extent. These birds are of unusual intelligence; many of this family may be taught to speak. The starlings are Old World birds. Those found in this country have been introduced from Europe. In the East they are increasing in number to such an extent as to be a menace; hence all should be interested in their peculiarities.

HORNED OR SHORE LARK*

If the variety of names by which this lark is known is any indication of its popularity, its friends must be indeed numerous. Snow Lark, Snowbird, Prairie Lark, Sky Lark, American Sky Lark, Horned Lark, are a few of them. There is only one American species, so far as known. It breeds in northeastern North America and Greenland, win-

tering in the United States. It also inhabits northern portions of the old world. The common name is derived from the tufts of black feathers over each ear, which the birds have the power of erecting at will, like the so-called horns of some owls.

In the Eastern States, during the winter months, flocks of horned larks, varying in size from a dozen to those of a hundred or more, may be seen frequenting open plains, old fields, dry shores of bays, and the banks of rivers. According to Davie, as there are a number of geographical varieties of the horned lark, the greatest uncertainty has always attended their identification even by experts, and the breeding and winter ranges of the various sub-species do not yet seem to be clearly defined.

Audubon found this species on the low, mossy, and sheltered hills along the dreary coast of Labrador. In the midst of the mosses and lichens that covered the rocks, the bird imbedded its nest, composed of fine grasses, arranged in a circular form and lined with the feathers of grouse and other birds.

Chapman says these larks take wing with a sharp whistled note and seek fresh fields or, hesitating, finally swing about and return to near the spot from which they were flushed. They are sometimes found associated with snowflakes. The pinkish-gray coloring is very beautiful, but in the Middle and Eastern States this bird is rarely seen in his spring garb, says an observer, and his winter plumage lacks the vivid contrasts and prime color.

As a singer the Shore Lark is not to be despised, especially in his nesting haunts. He has a habit of singing as

MAGPIE.
⅓ Life-size.

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he soars in the air, after the manner of the European Skylark.

MAGPIE

The Magpie is a handsome scamp. Like the Canada jay, he is a born thief and has the same sneaking ways which other members of the crow family possess. Magpies usually confine themselves to rough or mountainous regions, chiefly from New Mexico, Colorado, and Montana westward to the coast. The only other species common to the American continent is the yellow-billed Magpie, inhabiting the coast region of southern California.

Magpies are long-billed birds, probably handsomer than other members of the family except the jays. The flight, like that of the blue jay, is straight, horizontal, and slow. They are very fond of feeding on the carcasses of sheep and cattle. While collecting over the stock ranges in the Yellowstone region of Montana, I always encountered magpies about the herders' camps. These birds are not so noisy as many jays, despite the fact we often hear the expression, "chatter like magpies." The birds are mischievous in captivity, though they are intelligent and may be taught to speak.

The nests are remarkably large for the size of the birds. Like the oven bird and marsh wren, the nests are covered, and the only entrance is through a little hole on the side. These nests, usually placed close to the trunk of a tree, preferably a willow along creek bottoms and in cañons, are made of twigs and hay, lined with any soft substance available, such as wool, hair, and grass.

From examining a dozen nests, I judge the birds lay at intervals of from two to four days, yet incubation begins from time of deposit of first egg. In color the eggs resemble those of the yellow-headed blackbird or loggerhead shrike. The background is pale bluish-white, but the entire surface of the shell is almost completely covered with spots of light brown. These prolific birds lay seven or eight eggs.

BLUE JAY

The jays, like the hummingbirds, are found chiefly in the western and southwestern portions of North America. We have but two jays inhabiting the Great Lakes region. The Canada jay is the other representative. A very handsome jay inhabits the brushy sections of Florida, and is known as the Florida jay. The Blue Jay is common in the United States east of the Great Plains, from Florida to Canada. Throughout the year it remains in most of its range, though in Northern States its numbers are somewhat reduced in winter. During spring and summer the jay is forced to become an industrious hunter for insects for the brood, and it is not so conspicuous as when out roaming the country at will after the household duties are over.

The blue jay partakes of other birds' eggs and the young, and many farmers condemn its love for corn. Three-fourths of the bird's food consists of vegetable matter. It is difficult to decide, on summing up good and bad traits, whether to forgive the faults of this interesting scamp or to condemn and kill it.

The usual call or alarm note is suggestive of the word

AMERICAN BLUE-JAY.
¾ Life-size.

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STELLAR'S JAY.
½ Life-size.

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"Jay." The birds are clever imitators, one of their favorite pastimes being to perch near a group of chickens or other birds, and then give a perfect imitation of the call of the red-shouldered hawk, varied perhaps by imitating the red-tailed and the sparrow hawks. The result is a scurry for shelter as the jay flies away triumphantly. It delights in worrying owls and other birds, being unequaled as a tease.

Blue jays are noisy except when nesting, when they exhibit the usual cunning of the crow and jay family. Coniferous trees are used as nesting sites. In early April, before the foliage appears on the deciduous trees, the jay cleverly builds her nest among the large limbs of the tree so as to escape detection.

The nest is of small roots and sticks, lined with rootlets and grass. Four or five dark green eggs are laid. The markings are drab and dark brown. Eggs from different nests exhibit considerable variation. Two broods are often reared in a season.

STELLER'S JAY*

This is an abundant and interesting cousin of the blue jay, and is found along the Pacific coast from northern California northward. It is a very common resident of Oregon, is noisy, bold, and dashing. The nest of this bird is built in firs and other trees and in bushes, ten to twenty feet from the ground. It is bulky and made of large sticks and twigs, generally put together with mud, and lined with fine, dry grasses and hair. The eggs are three to five, pale

green or bluish-green, speckled with olive-brown, with an average size of 1.28 inches by .85 inch. There seems no doubt that many jays have been observed robbing nests of other birds, but thousands have been seen that were not so engaged. It has been shown that animal matter comprises only about twenty-five per cent of the bird's diet.

LONG-CRESTED JAY

The majority of our American jays inhabit mountainous districts in the western portions of the United States. The Long-Crested Jay is common in the Rocky Mountains, ranging through New Mexico and Colorado. Like the blue jay it possesses a crest, which the birds erect when alarmed or agitated.

Long-crested jays are partial to coniferous trees, and in the pine districts of Arizona they are permanent residents. Noisy troops of this species rove about the canyons during the winter months, at times their notes resembling those of the eastern blue jay.

The nests are usually concealed in a mass of twigs at the top of an evergreen tree. Sticks and weed stalks are used in the construction of the nest. Four or five light green eggs marked with brown and purple are laid in May or June.

Steller's jay, of which the long-crested is a sub-species, is confined to the Pacific coast from northern California to Alaska. The blue-fronted jay is another sub-species inhabiting the Sierra Nevada range, south of the region occupied by Steller's jay.

LONG-CRESTED JAY.
(Cyanocitta stelleri macrolopha).
Nearly Life-size.

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ARIZONA JAY.
3 Life size.

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THE ARIZONA GREEN JAY*

The geographical range of the Arizona Jay is in southern New Mexico and Arizona and south into Sonora and Chihuahua, Mexico. It is a common resident throughout the oak belt which generally fringes the foothills of the mountains and ranges well up among the pines. In suitable localities it is very abundant. It is rarely seen at any distance out of the arid plains; but after the breeding season is over, small flocks are sometimes met with among the shrubbery of the few water courses, several miles away from their regular habitat. They are seen in the early spring, evidently on a raid for eggs and the young of smaller birds. On such occasions they are very silent, and their presence is only betrayed by the scoldings they receive from other birds. On their own heath they are as noisy as any of our jays, and apparently far more sociable, a number of pairs frequently nesting close to each other in a small oak grove. They move about in small family parties of from half a dozen to twenty or thirty, being rarely seen alone. They are restless, constantly on the move, prying into this or that, spending a good portion of their time on the ground, now hopping on a low limb, and the next minute down again, twitching their tails almost constantly. Their call notes are harsh and far-reaching, and are somewhat similar to those of the California jay.

Their nests are usually of small sticks, lined with smaller roots and twigs, all rather loosely arranged. They lay four eggs of a bluish color without markings.

CANADA JAY

The Canada Jay, known as the Moose Bird, Whisky Jack, Camp Robber, Grease Bird or Venison Heron, is decidedly a bird of the north or Alpine region; therefore, it is found in the United States only in the northern portion of the northern states, except perhaps in the mountainous regions of Colorado, Wyoming, and Idaho.

Blanchan writes: "The Canada jay looks like an exaggerated chickadee, and both birds are equally fond of bitter cold weather, but here the similarity stops short. Where the chickadee is friendly the jay is impudent and bold; hardly less of a villain than his blue relative when it comes to marauding other birds' nests and destroying their young. With all his vices, however, intemperance cannot be attributed to him; in spite of the name given him by Adirondack lumbermen and guides, 'Whisky John' is a purely innocent corruption of 'Wis-ka-tjon' as the Indians call this bird that haunts their camps and familiarly enters their wigwams. The numerous popular names by which the Canada jays are known are admirably accounted for by Mr. Hardy in a bulletin issued by the Smithsonian Institution:

"They will enter the tents, and often alight on the bow of a canoe, where the paddle at every stroke comes within eighteen inches of them. I know nothing which can be eaten that they will not take, and I had one steal all my candles, pulling them out endwise, one by one, from a piece of birch bark in which they were rolled, and another peck

CANADA JAY.
(Perisores canadensis)
½ Life-size.

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a large hole in a keg of castile soap. A duck, which I had picked and laid down for a few minutes, had the entire breast eaten out by one or more of these birds. I have seen one alight in the middle of my canoe and peck away at the carcass of a beaver I had skinned. They often spoil deer saddles by pecking into them near the kidneys. They do great damage to the trappers by stealing the bait from traps set for martens and minks and by eating trapped game. They will sit quietly and see you build a log trap and bait it, and then, almost before your back is turned, you hear their hateful ca-ca-ca as they glide down and peer into it. They will work steadily carrying off meat and hiding it. I have thrown out pieces and watched one to see how much he would carry off. He flew across a wide stream, and in a short time looked as bloody as a butcher from carrying huge pieces; but his patience held out longer than mine. I think one would work as long as Mark Twain's California jay did trying to fill a miner's cabin with acorns through a knothole in the roof. They are fond of the berries of the mountain-ash, and, in fact, few things come amiss; I believe they do not possess a single good quality except industry."

Very few zoologists have been able to procure the eggs of this hardy bird, because they are laid in February or March when the snow is deep and travel through the forest is laborious. A few persevering collectors have successfully hunted the nests on snow-shoes. The three or four blue eggs, finely speckled with dark brown, are deposited in a large bulky nest made of stems, fur, feathers and moss, warmly lined and placed among the thickest branches.

RAVEN

The Raven in appearance reminds one of an overgrown crow, though less gregarious, more shy, and more boreal. The raven has been observed near Lake Michigan about northern Illinois and Indiana during severest winters, and may be met with on both the Pacific and Atlantic coasts as well as in the interior.

The sub-species known as the northern raven undoubtedly reaches the coldest climates of any living creature. Arctic explorers in their search for the Pole have observed the raven where all other signs of animate life cease to exist. The plumage is in striking contrast to that of other boreal creatures, such as the ptarmigan, Arctic fox, snowy owl, and polar bear. Blacks being the warmest color, undoubtedly explains this bird's ability to reach such a northerly latitude.

Ravens may be frequently observed walking leisurely along the beaches just above the water line picking up the mollusks and other bits of marine life. Their note is a coarse croak, which seems to issue from the throat and is less musical than the call of the crow. In the northern countries of the Eastern Hemisphere, the raven is regarded by some races as a bird of ill-omen. Ravens are readily taught to speak and are at times kept as pets.

Like the crow and jay, the raven is omniverous, feeding on fish, grain, berries, and other forms of animal and vegetable life. Quite a few ravens breed in the mountains along the Pacific coast of California. The large nests of

RAVEN.
⅛ Life-size.

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AMERICAN CROW
½ Life-size.

sticks are placed on little shelves in almost inaccessible places. They also breed along the rocky coasts of Maine, New Brunswick, Newfoundland, and Nova Scotia.

The raven lays from two to five eggs; in shape and coloration they resemble the eggs of the crow, but like the bird are considerably larger.

CROW

Crows range from northern Mexico to the Arctic regions, where they are then replaced by their larger relative, the northern raven. Crows which breed from northern United States northward usually migrate at the beginning of cold weather; in other localities, they are generally resident. The Florida, fish, and northwestern crows inhabit the extreme portions of North America and are all closely allied to our common crow, the principal differences being in the size of the bills, feet, and wings. A typical crow is entirely black with a metallic luster which is suggestive of purple or steel blue.

The female is slightly smaller than her mate. Crows adapt themselves to almost any diet; in fact, the bill of fare is as varied as are the call notes. Fruits, seeds, grain, insects, crawfish, carrion, eggs, and young birds are all agreeable to a crow's palate; it is doubtful if he destroys enough insects to pay for his depredations.

Crows are intelligent birds, possessing calls so varied that naturalists have termed it a "Crow language." When taken young they may be taught to speak. They are cunning, mischievous, inquisitive, and daring, so their repu-

tation among other birds (also the farmer) is far from enviable. Although few are their friends and numerous their enemies, they have their virtues. Fond of corn and especially sprouting corn, they are often shot for pulling it up, when they are really feeding upon worms. Crows are loyal to each other, and I know of no other bird (aside from the English sparrow) more capable of holding his own against all comers.

Less than seventy years ago the Indian, wolf, prairie chicken, and wild-fowl, together with the crow, were the most prominent features of the Calumet region, in and about where Chicago is now located. With the encroachment of civilization, all have vanished save the crow, which continues to nest in considerable numbers within the city limits of Chicago. From October to April they congregate at dusk by the hundreds about some favorite roosting place, and at early morn they scatter about the country, apparently in search of adventure as well as of food.

The nesting season extends from March to June, according to locality. In the Great Lakes region eggs are deposited in April. Nests are placed from twenty-five to seventy feet above the ground, preferably in the crotch of a forest tree. In Dakota, where timber is scarce, during the latter part of May, 1900, I found them nesting only ten feet above the ground. Recently I have located about Chicago several nests which were only fifteen feet above the ground, while other pairs continue housekeeping at an elevation of sixty feet.

The bulky, substantial nests are constructed of twigs, hay, roots, grass, and sod, with a lining of finer material

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NEST OF THE AMERICAN CROW.
(Corvus americanus).
¼ Life-size.

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CLARKE'S NUTCRACKER.
(Nucifraga columbiana)
About ¼ Life-size.

consisting of bark strips and bunches of hair and wool. Last year's nests are a favorite receptacle for the eggs of the horned and barred owls, which utilize them for breeding purposes in February and March. The four to seven eggs so vary in size, shape, and color, that eggs from the same nest frequently appear to have been laid by different birds.

Read "Silver Spot, the Crow," by Ernest Seton-Thompson.

CLARKE'S NUTCRACKER

Clarke's Nutcracker, or Clarke's Crow, is smaller than our true crows but larger than the jays. It is a shy, cautious bird inhabiting the mountainous regions of the United States and Canada. Comparatively little has been written about the habits of this bird owing to its shyness and retiring disposition. Naturalists find it difficult to visit the breeding grounds while the birds are laying their eggs or rearing their young.

Their food consists almost entirely of pine seeds, which they dexterously extract from cones, hence the range of the birds from year to year varies according to the abundance of pine cones. The female guards her eggs so closely that it is possible to remove the bird from her nest with the hand. Like the Canada jay and magpie, the nutcracker is possessed of great cunning, and is a restless, uneasy fellow.

In March and April when the snow is still deep on the mountain slopes, the nutcracker is constructing a warm nest in the densest part of some coniferous tree. In appearance the nest might readily be mistaken for that of a

squirrel, being a substantial, warm structure in which the birds lay two to four eggs.

STARLING

The original home of this bird is Europe. About two hundred varieties of the Starling occur in various parts of Europe and Asia, but this introduced species is the only true starling to be found in America. The starling was originally given a place on the list of North American birds through record of a specimen from Greenland. Several unsuccessful attempts were made to introduce this bird into the United States before the last importation proved only too successful. About half a hundred birds were liberated in Central Park, New York, in 1890. They are now found resident from New Haven and Boston on the east to Philadelphia on the south and Albany on the north. So prolific are they that they increase in numbers and extend the range almost as rapidly as did the English sparrow when first introduced. It is likely that a war of extermination will soon be declared.

Like our other foreigner, the English sparrow, these birds take refuge about the habitations of man, nesting in the crevices of buildings and hollow trees and lately in branches of trees. Outside of the breeding season they congregate in flocks about parks and orchards. Like our crow and meadowlark, the starling progresses on land by walking instead of hopping or running.

They are birds with handsome, glossy plumage and exhibit to a certain degree some of the intelligence and

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STARLING.
Sturnus vulgaris).
¾ Life-size.

cunning possessed by our crows and jays. They are fond of mimicking other birds, and this trait can be cultivated to a remarkable degree by birds in captivity, for like some other members of the intelligent family they may be taught to speak.

In the Old World the starling, like the English sparrow constructs a nest in the trees, under the eaves, in church steeples, and in boxes erected for their accommodation. Outwardly the nests are constructed of twigs, straws, and grasses, lined with finer material. The eggs are about the size of a meadowlark's and are pale blue unspotted.

BOBOLINK
¾ Life-size.

CHAPTER XV

BLACKBIRDS, ORIOLES, ETC.

Blackbirds, Orioles, Grackles, Cowbirds, and Meadowlarks are members of the Icteridæ family.

While birds of this family are usually tropical, some of our very interesting species belong to this group. Excepting the orioles, they are gregarious after nesting; some flock throughout the year, others during migration. They are found living in all kinds of territory, from marshes to the driest plains. They feed on fruit, seeds, and insects; the males are often adorned with bright plumage. Some of these birds are noted for song, as the meadowlark and bobolink.

BOBOLINK

Most everybody knows the Bobolink, or Skunk Blackbird, so called because of the pattern of the male's plumage. Famous in prose and verse, he is the most popular songster of the starling family.

Bobolinks winter in South America, south of the Amazon. The plumage at that season of the year is light brown, the feathers being lighter on the margins, both sexes being dressed alike. In March the northward flight begins, and, when the birds reach Florida in April, the males have acquired the black and white plumage, and also their bubbling, rollicking song, so in keeping with the

breezy meadows and flowering prairies. About May 1st, flocks of the males arrive in the central United States from New York west across the Mississippi Valley. The females appear about a week later, when the game of hide and seek begins.

Bobolinks are abundant in certain localities from the central United States northward into southern Canada. In many a low pasture or weedy marsh, many swaying weed stalks contain a male bobolink. Suddenly a female, which always wears the same plumage used by both during the fall and winter months, arises from the ground, where she has been deciding upon a suitable place in which to conceal her nest. Immediately from two to six males, singing simultaneously, pursue her in a zigzag course low over the waving vegetation. She drops to the ground, but her pursuers continue in the air, flying in different directions before returning to their respective perches. Frequently while waiting for the object of their affection to present herself, their ecstasy and passion seems uncontrollable, and they launch into the air with outstretched wings, and soar for perhaps thirty seconds in little circles, uttering their bubbling, laughing song; then with upraised wings they gradually drop like a parachute to terra firma.

A bobolink is a true sport while nesting lasts. In July his ardor has cooled, for, before the month expires, molting has set in. He again assumes the dull plumage of the female, and his only note is a metallic pink-pink.

After molting, the birds gather in flocks and resort to rivers and marshes for the wild rice. Here they are slaughtered in great numbers as the popular game bird, the reed

bird or rice bird. They feed upon both insect and vegetable material while nesting, and in the North are highly beneficial, as they consume vast numbers of insects while nesting. Later, in August and September, rice is their principal food, and they are slaughtered in numbers in the rice fields of the South.

No nest is harder to find, considering the abundance of the bird, than that of the bobolink. The nest is placed on the ground, usually in a little hollow flush with the surface. Sometimes the vegetation so cleverly conceals the nest, containing four to seven darkly spotted eggs, that one must carefully part the grass blades in order to see the hidden treasures. Many nests, however, are placed in open situations where the grass is short and scant. When you infer that the male is pouring forth his eloquence to vie with the neighboring bobolinks, he is really cautioning his mate and warning her of your presence; he sweeps about and at the psychological moment inserts into his music the bobolink signal. Madam gently arises from her nest and moves through the grass until she is probably fifty feet away before she ventures to expose herself, or in any way seems to recognize your presence. The nest may be in any direction from where you first discover the female, and neither parent is inclined to aid you in your difficult search. If the eggs are about to hatch or if the nestlings require the mother's warmth, she is loath to regard the warning notes of her mate, and may allow you to almost tread upon her before she flutters reluctantly away.

Other names: Rice Bird, Reed Bird, Rice Bunting, Reed Bunting, Butter Bird, Rice Troopial, Bobolinkum.

COWBIRD

Our common Cowbird is found from the Atlantic west to the Plains; nesting from Texas to New Brunswick and Manitoba, wintering in southern Illinois south. It derives its name from the habit of feeding around cattle. Often several may be seen gathered about the feet of cattle, and even alighting upon the backs of the animals, where they search for ticks and other parasitic insects. They also destroy great numbers of flies and other annoying pests about cattle, and also feed upon worms, grubs, and other insect life which they are apt to obtain from nearby places, as plowed fields. They also consume a small amount of grain; but for their parasitic habits, they would be a most useful bird.

The head and throat of the male during the spring and summer months is cinnamon brown, the other parts of the plumage a glossy black. The female is dull brownish, without any luster to the plumage.

The call note of the cowbird is a sound not unlike the whistle of a woodcock's wing. These polygamous birds move about in groups of three to six, and the females seem to outnumber the males in the ratio of about two to one. The South Atlantic and Gulf States are the home of the dwarf cowbird, a distinct species, but very similar in habits. West of the Mississippi and northward into Canada is the range of the red-eyed cowbird, which, unlike its near relative, lays a light blue unspotted egg.

Like the European cuckoo in one respect only, the

COW BIRD.
½ Life-size.

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YELLOW-HEADED BLACK BIRD.
⅔ Life-size.

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cowbird, or cow blackbird, deposits her eggs in the nests of other birds, usually some smaller variety, as she builds no nest, but leaves her eggs solely to the care of the foster parents. Nests of the yellow warbler, bobolink, indigo bunting, song sparrow, field sparrow, towhee, yellow-breasted chat, red-winged blackbird, and redstart are frequently used for this purpose. Sometimes the eggs of the cowbird closely resemble those of the owner of the nest, as is true with the eggs of the towhee, chat, and cardinal.

Such birds as the catbird, wood thrush, and prairie horned lark resent such imposture, and destroy or remove the cowbird's eggs. Some of the smaller species, as the yellow warbler, unable to cope with the situation, build over the intruder's eggs, since the cowbird often deposits her eggs before the owner of the nest begins to lay. I have known yellow warblers to repeat this operation three times in one nest in their effort to rid themselves of the unwelcome eggs. If hatched, the intruders monopolize the nest, crowding the nestlings from their own cradle or starving and smothering them.

YELLOW-HEADED BLACKBIRD

Like the dickcissel, the occurrence of the Yellow-headed Blackbird is uncertain and erratic. In many sections from the Mississippi to the Pacific they may be found breeding singly or in small flocks, usually returning annually to the same swamps and marshes. East of the Mississippi their appearance is uncertain and rare. During years of study and observation in northern Illinois, I never discovered this

bird spending the summer with us until 1900, when I observed a small colony nesting in a bayou on the South Side of Chicago, in company with redwings. The latter appeared to be in perfect plumage, but the yellow-heads were a sorry-looking lot, as the bright head, neck, and throat had lost the luster. I finally concluded that the birds had soiled the plumage with soot by frequenting a patch of partially burned rushes.

The notes of the yellow-head are less vivacious than those of our other starlings, except the cowbird. The notes are uttered deep down in the throat and convey the impression that the birds are attempting a sarcastic laugh at the expense of their vivacious associates, the red-winged blackbirds. These birds are also frequently found in company with the cowbird around cattle, excepting at nesting time. In habits and food they are similar to the redwing, making the bird a friend to agriculture. While nesting they feed their young each day worms and grubs by the hundreds.

During the last five years the yellow-heads have colonized in several places near Chicago, and appear to increase in numbers annually. They invariably nest in bulrushes or cattails over water. Externally the nests are composed of strips of bulrushes; sometimes wild rice and other reeds are used in the composition, with a lining of the same material, but finer. Three to five eggs are deposited about the middle of May. The background is pale bluish-white, so thickly covered with specks and spots of light brown that we imagine we have found a nest of brown eggs, when we first stand up in the boat and peer over the edge of the nest.

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RED-WINGED BLACKBIRD.
½ Life-size.

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RED-WINGED BLACKBIRD

The Red-winged Blackbird, or Red-shouldered Blackbird, or Red-winged Starling, inhabits the United States and southern Canada, west to the Plains. Abundant where marshes and lakes are common, of late years several divisions have been made in the geographical distribution of this species, and as a result several sub-species have appeared on our bird list, though the habits and general appearance is the same in all. The males have a scarlet patch on the bend of the wings, and the females, while not possessing any of the bright effects, are also handsome birds, as streaks of black, grayish, and white run lengthwise on the under parts of the female, giving her a pleasing appearance.

The call, "Konk-la-ree," the last syllable having a drawn-out effect, is the song of the redwing, and, though his attempt at singing is really a failure, the notes are well in keeping with the dismal swamps and marshes frequented. His haunts are the retreats of many other birds, but he is the only red-plumaged bird among them. Both sexes produce the mellow "chink" characteristic of blackbirds in general. It may be heard in August and September, when great flocks of the redwings descend upon the grain fields and wild rice. At that season they are frequently served on the bill of fare as reed birds, which name supposedly refers to the bobolink only.

Before the snow disappears from the shady fence corners, and thin ice still forms after sunset, the redwing returns, and we welcome the notes, "konk-la-ree," which

we hear from a distant willow just as the ducks are settling in the bay for their evening repast.

Redwings subsist on seeds, including grain, fruits, and insects. While breeding they destroy great numbers of insects, while their fondness for grain is manifested when they congregate in the late summer months and stop in the cultivated fields on their southward journey.

Farmers' Bulletin No. 54 states that little grain is consumed by these birds, while about 57 per cent of their fare is injurious weed seeds. It eats but little fruit and altogether it is estimated that seven-eighths of its food is injurious weed seeds and insects, indicating that the bird should be protected. In fact they are highly useful to the farmer by the benefit they confer in the destruction of grub worms, caterpillars, and various kinds of larvæ, the secret and deadly enemies of vegetation. It has been estimated that in a single season these birds destroy twelve thousand millions of noxious insects.

Redwings are very jealous of their eggs and young, and attack without hesitancy all hawks, crows, or other marauders with almost as much aggressiveness as does the kingbird.

The nests are placed in low bushes on or near the water. Many times the nests are woven to the upright stalks of cattails or bulrushes. Dry grass, stems, and strips of rushes are used externally, and the inside is lined with fine stems. Some nests have Indian hemp on the outside, giving them the appearance of a large yellow warbler's nest. The four or five eggs are light blue, marked with scrawls and streaks of deep purple and black, chiefly about the large end.

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MEADOWLARK.
(Sturnella magna).

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MEADOWLARK

All United States and southern Canada is favored with the presence of the Meadowlark, sometimes wrongly called field-lark. Florida, Georgia, and Alabama are inhabited by the Southern meadowlark. From Iowa and Minnesota westward across the continent in the United States and Canada, the Western meadowlark, a more musical variety, ranges. Southwestern Texas, along the Rio Grande, east to Louisiana, is the home of the Mexican or Rio Grande meadowlark. The true meadowlark occurs from New York, New England, and Quebec, west to the States bordering the Mississippi on the west. In portions of Iowa and Missouri, both the Western and Eastern meadowlark may be found breeding together.

Before there is the slightest indication of budding life, except in the redding of the willow stems, this robust little fellow returns from the South to his favorite meadow or pasture. No bird becomes more attached to a given locality than this starling. He weathers many a cold northwestern, eking out an existence on weed seeds and a little grain. Old tussocks of grass or a weather-beaten corn shock offer protection from the frosty nights, which are still due for five or six weeks. The flight is low and he moves in a horizontal line, alternately flapping and sailing much like the bob-white, the field-mark being the two white outer tail feathers. His mode of travel through the air would suggest that his flight was uncertain and that he had not fully developed or mastered the art of aviation.

What can be more cheerful than the whistle of this lark? The song flight is a more pronounced demonstration of affection, and is probably for the benefit of his mate, which may be pursued, or *vice versa.*

I quote the following from F. E. L. Beal's report in Farmers' Bulletin No. 54: "In 285 stomachs examined, animal food (practically all insects) constituted 73 per cent of the contents, and the vegetable matter 27 per cent. As would naturally be supposed, the insects were ground species, such as bugs, beetles, grasshoppers, and caterpillars, together with a few flies, wasps, and spiders. A number of stomachs were taken from birds killed when the ground was covered with snow, but even these contained a large percentage of insects, showing the bird's skill in finding proper food under adverse circumstances." Grasshoppers seem to be the natural food.

More than half of the meadowlark's food consists of harmful insects. Its vegetable food is composed either of obnoxious weeds or waste grain. The strong point in the bird's favor is that, although naturally an insect-eater, it is able to subsist on vegetable food, and consequently is not forced to migrate in cold weather farther than is necessary to find the ground free from snow. It should never be regarded as a game bird, nor is it right that these useful birds be protected in the North only to furnish Southern pot-pies.

So closely do these birds guard the contents of their nests that the farmer's mower frequently passes over the hidden treasures without fatal results to the close-sitting parent. They gather in migrating flocks in fall.

GOLDEN ORIOLE.

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AUDUBON'S ORIOLE*

Audubon's Oriole, the male of which we illustrate, has a very limited range, including the "valley of the Lower Rio Grande in Texas and southward in Mexico to Oaxaca." Their usual song is a prolonged and repeated whistle of extraordinary mellowness and sweetness.

The nest of this oriole is usually placed in mesquite trees, in thickets, and open woods, from six to fourteen feet from the ground. It is a semipensile structure, woven of fine, wire-like grass used while still green and resembles those of the hooded and orchard orioles, which are much better known. The nest is firmly attached, both on the top and sides, to small branches and growing twigs and, for the size of the bird, it appears rather small. One now before me measures three inches in depth inside by about the same in inner diameter. The rim of the nest is somewhat contracted to prevent the eggs from being thrown out during high winds. The inner lining consists of somewhat finer grass tops, which still retain considerable strength and are even now, when perfectly dry, difficult to break.

THE GOLDEN ORIOLE*

We find the Golden Oriole in America only. According to Mr. Nuttall, it is migratory, appearing in considerable numbers in west Florida about the middle of March. It is a good songster, and in a state of captivity imitates various tunes.

This beautiful bird feeds on fruits and insects, and its nest is constructed of blades of grass, wool, hair, fine strings, and various vegetable fibers, which are so curiously interwoven as to confine and sustain each other. The nest is usually suspended from a forked or slender branch, in shape like a deep basin, and generally lined with fine feathers.

"On arriving at their breeding locality, they appear full of life and activity, darting incessantly through the lofty branches of the tallest trees, appearing and vanishing restlessly, flashing at intervals into sight from amidst the tender, waving foliage, and seem like living gems intended to decorate the verdant garments of the fresh-clad forest."

t is said these birds are so attached to their young that the female has been taken and conveyed on her eggs, upon which, with resolute and fatal instinct, she remained faithfully sitting until she expired.

An Indiana gentleman relates the following story:

"When I was a boy, living in the hilly country of southern Indiana, I remember very vividly the nesting of a pair of fine orioles. There stood in the barn yard a large and tall sugar tree with limbs within six or eight feet of the ground.

"At about thirty feet above the ground I discovered evidences of an oriole's nest. A few days later I noticed they had done considerable more work, and that they were using horse hair, wool, and fine strings.

"They appeared to have some knowledge of spinning, as they would take a horse hair and seemingly wrap it with wool before placing it in position on the nest."

HOODED ORIOLE.
(Icterus cucullatus).
⅔ Life-size.

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THE HOODED ORIOLE*

Only a very limited portion of the United States is beautified by the presence of the bright-colored Hooded Oriole. The North has the richly plumaged Baltimore oriole for a short time each year, but only the far south-eastern part of Texas is enlivened by this graceful, active bird of our illustration, which is "so full of song that the woods are filled with music all the day." Both of these birds seem scarcely to belong to the North, where somber colors seem more in harmony with a severer climate.

The hooded oriole has a very narrow range, reaching from Texas southward through eastern Mexico to Honduras, and during our Northern winters it has the Baltimore as an associate. It is a social bird and frequents the home of man. One writer, relating his experiences with this oriole, says: "They were continually appearing about the thatched roof of our houses and the arbors adjoining for insects; they were more familiar than any of the other orioles about the ranch."

It not only delights man by its song and beautiful coloring, but its presence is also beneficial, for it destroys countless adult insects and their larvæ.

The hooded oriole seldom builds its nest higher than from six to twelve feet above the ground, though in a few instances it has been found as high as thirty feet. Dr. James C. Merrill, in his "Notes on the Ornithology of Texas," says: "The nests of this bird found here are perfectly characteristic, and cannot be confounded with those of any

allied species. They are usually found in one of the two following situations: the first and most frequent is in a bunch of hanging moss, usually at no great height from the ground; when so placed the nests are formed almost entirely by hollowing out and matting the moss, with a few filaments of a dark, hairlike moss as a lining; the second situation is in a bush growing to a height of about six feet, a nearly bare stem, throwing out two or three irregular masses of leaves at the top.

ORCHARD ORIOLE

The Orchard Oriole ranges throughout eastern North America, from the Gulf to Canada, wintering in Central America.

The orchard oriole was until fifteen years ago one of the characteristic birds of the Chicago area, and he appeared the embodiment of this hustling center, as he is apparently always in a hurry. Even his notes, though pleasing, are uttered while he is rapidly moving through the foliage removing caterpillars from the leaves or other forms of insect life from the bark of trees. It, like the Baltimore oriole, is welcome about the home, as the beauty, the song, and the destruction of insect life make it a highly useful bird.

The plumage of the male orchard oriole is darker than that of our other American orioles, and should not be mistaken for the more common Baltimore. With the Baltimore oriole, this is the only species common to eastern North America. Orioles are not forest-loving birds, but

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ORCHARD ORIOLE.
⅝ Life-size.

BALTIMORE ORIOLE.
½ Life-size.

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seem to prefer orchards, shade trees, or a narrow growth of trees along streams.

Unlike the Baltimore, the orchard oriole uses grass almost exclusively in constructing a nest. The grass consists of long blades obtained while green. After the nest is completed, the grass becomes cured into a beautiful yellowish-green. The shape of the nest and the attachment to the small twigs remind one of the nests built by our vireos, but is somewhat larger and built of different material.

Frequently the orchard oriole has the peculiar habit of constructing two adjacent nests. Four to six eggs are laid; the background is bluish-gray and the markings appear in the form of dots, irregular blotches of dark brown and black. They bear a general resemblance to the eggs of the red-winged blackbird, being without the scrawls or pen lines so frequently seen on the eggs of the Baltimore oriole.

BALTIMORE ORIOLE

The "Fire Bird," "Hang Nest," or "Troupalo," is named in honor of Lord Baltimore, who wore the black and orange robe. In the eastern United States this is the most striking of the starling family. It breeds from the Gulf to Canada, wintering in Mexico and Central America. The orioles live principally on worms and their larvæ. They are among our most valuable birds, and should be encouraged to nest about yards and orchards by putting out nesting material.

The notes of the male oriole are more musical than those of the various blackbirds, and are perhaps slightly sug-

gestive of the whistle of the meadowlark, though less clear and uttered more hastily. The call or alarm note used by both sexes is a low rattle, suggestive of the kingfisher's note.

Their nests are placed at the extremities of drooping branches, preferably those of the elm, maple, and locust, being wonderful examples of bird architecture. The material used in construction varies greatly with the bird's locality, but is largely of uniform material, so as to weave the better. Some nests are constructed almost exclusively of horse hair; others are made of grayish-white plant down known as Indian hemp, or of string and ravelings. The inside of the nest is of finer material, and the whole structure is so fastened to the limbs or branches that it swings in the breeze usually independent of the limbs to which it is attached. The mother bird lays her eggs and hatches in a cradle her young where they may be lulled to sleep by the warm winds of May and June.

The four to six eggs have a white background and are remarkably colored with scrawls or pen lines of dark brown or black, resembling Chinese writing.

Year after year the birds return to the same tree to nest. Roadsides, orchards, or a large shade tree close by the water's edge are favorite sites.

BULLOCK'S ORIOLE

This handsome bird is probably the commonest of the Western orioles. In size and shape it resembles our Eastern variety, the Baltimore oriole. Inhabiting the territory west of the Great Plains to the Pacific Ocean, it is common

BULLOCK'S ORIOLE.
(Icterus bullocki).
¾ Life-size.

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RUSTY BLACKBIRD OR GRACKLE
(Scolecophagus carolinus).
⅔ Life-size.

in both flat and mountainous sections. While taking a few berries to mix with the insect diet, like the orioles found in eastern North America, it is highly beneficial because of insect diet gleaned from foliage and bark of trees. The call note is rather melancholy, a whistle and warble combined.

The nests, like those of the Baltimore oriole, are pensile, and attached to the smaller branches of limbs at an elevation ranging from ten to thirty feet. The nests are constructed of various kinds of material; usually the most available is utilized. This may be string, plant fiber, horse hair, or grass. The inside of the nest is lined with finer substances. The nests, while securely attached to the limbs and stems, frequently swing independently of the branch to which they are attached.

Four to five eggs are laid usually in May. The background is pale bluish-white and the markings appear in the form of scrawls and pen lines of deep purple and black.

RUSTY BLACKBIRD

The Rusty Blackbird, or Grackle, is about the size of our common red-winged blackbird. These hardy birds frequently spend the winter in southern Illinois and Indiana. The feathers are edged with brown and this appearance has caused many observers to describe this bird as the thrush blackbird. These birds do not congregate in immense droves like some of our starling family, but usually appear in the Great Lakes region semi-annually in small flocks, in spring singing the musical medleys. They are often mistaken for female redwings; and sometimes mistaken for grackles,

though the smaller size and duller plumage readily distinguish them from the grackles.

The bird lives practically upon insects, except during the migrations, when a moderate amount of grain and small wild fruit is consumed. It is therefore useful, and should be protected. Brewer's blackbird, a species similar to the rusty blackbird, is found breeding in the western portions of the United States, from the Rocky Mountains to the Pacific.

Nova Scotia, New Brunswick, Newfoundland, and Labrador are favorite nesting grounds. The nests are composed of stems, grass, and moss mixed with mud and usually placed in coniferous trees similar to the abode of the purple and bronzed grackles. The eggs are light blue, distinctly marked with blotches and spots of dark brown and purple.

BRONZED GRACKLE

The Bronzed Grackle, or the "Crow Blackbird," or one or more of its sub-species, is a familiar object in all the States east of the Rocky Mountains. In size, habits, etc., this bird is so much like the purple grackle that one plate does for both. Throughout the year it is resident as far north as southern Illinois, and in summer extends its range into the British provinces. In the Mississippi Valley it is one of the most abundant birds, preferring to nest in the artificial groves and windbreaks near farms instead of in the natural "timber" which it formerly used. It breeds also in parks and near buildings, often in considerable colonies. In New England, it is only locally abundant, though

BRONZED GRACKLE.
$\frac{3}{8}$ Life-size.

frequently seen in migration. After July it becomes very rare, or entirely disappears, owing to the fact that it collects in large flocks and retires to some quiet place where food is abundant and where it can remain undisturbed during the molting season; but in the latter days of August and throughout September it usually reappears in immense flocks before moving southward.

"The crow blackbird is accused of many sins, such as stealing grain and fruit and robbing the nests of other birds, but the farmers do not undertake a war of extermination against it, and for the most part allow it to nest undisturbed about their premises. An examination of 2,346 stomachs shows that nearly one-third of its food consists of insects, of which the greater part are injurious. The bird also eats a few snails, crawfishes, salamanders, small fish, and occasionally a mouse. The stomach contents do not indicate that it robs other birds to any great extent, as remains of birds and birds' eggs amount to less than half of one per cent.

"It is on account of its vegetable food that the grackle is most likely to be accused of doing damage. Grain is eaten during the whole year, and during only a short time in summer is other food attractive enough to induce the bird to alter its diet. The grain taken in the winter and spring months probably consists of waste kernels gathered from the stubble. The stomachs do not indicate that the bird pulls sprouting grain, but the wheat eaten in July and August and the corn eaten in the fall are probably taken from fields of standing grain. The total grain consumed during the year constitutes 45 per cent of the whole food,

but it is safe to say at least half is waste grain, and consequently of no value. Although the crow blackbird eats in their season a few cherries and blackberries, and in the fall some wild fruit, it apparently does little damage in this way.

"Large flocks of grackles no doubt do considerable injury to grain crops; and there seems to be no remedy except the destruction of the birds, which is in itself expensive. During the breeding season, however, the species does much good by eating insects and by feeding them to its young, which are reared almost entirely upon this food. The bird does the greatest amount of good in spring, when it follows the plow in search of large grub-worms, of which it is so fond that it sometimes literally crams its stomach full of them." (Farmers' Bulletin No. 54.)

The bronzed grackle is the Western form of the purple grackle, commonly known as the crow blackbird. These birds are very sociable, and frequently nest in colonies. Until recent years, the bronzed grackle exhibited a decided preference for coniferous trees, and the scarcity of these birds in Chicago was probably due to the fact that few places afforded suitable nesting sites. Outside our cemeteries, evergreen trees were uncommon. Since 1904 the bronzed blackbird has become abundant in northern Illinois, nesting in public parks and shade trees. This bird is not legally protected in many of our States, owing to the great ravages they make upon the grain fields and berry crops. Their notes are hoarse and unmusical; the flight slow and laborious.

The nest is a bulky affair of dried grass, stems, and roots, lined with light grass, and placed usually in a conif-

FROM COL. CHI. ACAD. SCIENCES

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GREAT-TAILED GRACKLE.
Quiscalus macrourus.)
½ Life-size.

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erous tree. The three to six eggs are light blue, marked and scrawled with irregular shades of brownish-black.

THE GREAT-TAILED GRACKLE*

The Great-tailed Grackle belongs to a family of birds that is "eminently characteristic of the New World, all the species being peculiar to America." It is the family of the blackbird and oriole, of the bobolink and the meadow-lark. It is called the Icteridæ, from a Greek word, *ikteros,* meaning a yellow bird. The majority of the one hundred and fifty or more species that are grouped in this family make their home in the tropics, where their brilliant colors are emphasized by the ever-green foliage and the bright sunshine.

The family is interesting because the species, though closely related, vary so widely in their habits. They "are found living in ground of every nature, from dry plains and wet marshes to the densest forest growth." Here are classed some of the birds which are among the most beautiful of our songsters. Here, too, are classed some species that never utter a musical sound, and whose voices are harsh and rough. The sexes are usually dissimilar, the female being the smaller and generally much duller in color.

The great-tailed grackle is a native of eastern Texas and the country southward into Central America. The grackles are sometimes called crow blackbirds. There are five species, all found in the United States. The bronzed and the purple grackles are the most generally distributed and best known.

The great-tailed grackle, as well as the other species, usually builds rude and bulky nests in trees, sometimes at quite a height from the ground. It will also nest in shrubs and it is said that it will occasionally select holes in large trees. The males are an iridescent black in color, and the females are brown and much smaller. Both sexes spend most of their time on the ground. Their feet are strong and large, and, when upon the ground, they walk or run and never hop.

EVENING GROSBEAK

CHAPTER XVI

FINCHES, SPARROWS, ETC.

THE family *Fringilladæ* includes sparrows, various finches, crossbills, dickcissels, etc. This is the largest family of birds and contains some of our most sociable species. Most birds of the family feed on the ground. The beak is strong, as most birds of the family feed on seeds. Some are migratory, while many of them are resident throughout the year. Many of them are noted songsters. They vary in plumage from the beautiful cardinal to the dull-colored sparrow; the bright-colored grosbeaks and finches are usually arboreal.

EVENING GROSBEAK

The Evening Grosbeak is a rather heavy-set bird with large head and powerful beak. This form occurs from Maine, New Brunswick, and Labrador west to Manitoba and Alaska; south in winter to northern United States. The Western evening grosbeak is a species of lighter coloration, and occurs in the Rocky Mountains and Sierra Nevadas. Grosbeaks winter in Alpine regions bordering on the plains and in Canada south to northern United States into New York, Ohio, and Illinois at irregular intervals from October to May.

Evening grosbeaks are very sociable fellows, often associating with pine finches, crossbills, and waxwings. They

thrive on buds and winter berries. During the coldest days of January these hardy birds may be seen moving in flocks of from, say, six to sixty, from limb to limb, calling to each other in their mild, subdued notes, "chee, chee, chee." By no means shy birds, they are found in our public parks and highways, perfectly unconcerned.

I have a nest and three eggs taken June 11, 1909, on the mountains in Arizona at an altitude of 7,000 feet. The nest was placed 55 feet up in a pine tree and on a limb 20 feet from the trunk. The nest is made of dead pine twigs, lined with fine grass and rootlets.

PINE GROSBEAK

The Pine Grosbeak, like the crossbills and evening grosbeak, is an inhabitant of northerly latitudes, and may be observed in the northern portions of the United States only during the late fall and winter months. As its name would imply, it is a lover of evergreen forests. It inhabits the northern portions of both the Eastern and Western Hemispheres. Ernest E. Thompson says: "Its form resembles that of the robin, but the resemblance ceases when we notice the short, thick beak and forked tail." Like the evening grosbeak, it moves leisurely among the trees; the flight is accompanied by a loud, clear whistle.

These birds become reconciled to cages and make interesting pets. During the mating season their song is extremely sweet and varied. They breed early, while snow is still on the ground. They feed largely on wild berries like those of the juniper, mountain ash, sumac, etc.

PINE GROSBEAK.
(Pinicola enucleator.)
¾ Life-size.

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PURPLE FINCH.
¾ Life-size.

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The nests are of twigs, rootlets, and finer materials, placed at a rather low elevation in some coniferous tree. The three eggs in my collection were laid by a pair of birds which Mr. O. W. Knight, a Maine bird student, kept in captivity. They are deep greenish-blue, sparingly spotted with dark brown.

PURPLE FINCH

The Purple Finch nests in the mountainous regions of New York, but the favorite summer home of this little fellow is through northern Wisconsin, east across the northern tier of States and well up into Canada. The name in describing the color of this bird is slightly misleading, the plumage being more red than purple. "Females and young males bear a decided resemblance to some sparrows, but the rounded bill, tufts of feathers over the nostrils, and the forked tails are distinguishing characteristics."

It is a clever little songster. Led by a roving disposition, during the winter it wanders over temperate North America, visiting our city parks, orchards, and shade trees, though its fondness for fruit buds and blossoms makes it no favorite of the fruit grower.

The nests are usually placed in coniferous trees; sometimes a fruit tree is selected. Grass, roots, and feathers are used in the outward construction of the nest, lined with long horse hairs.

In appearance, size, and construction it bears a strong resemblance to the chipping sparrow's nest. The eggs, like the nest, are also suggestive of the chipping sparrow, but are larger.

THE HOUSE FINCH*

This active and pretty little bird is an attractive feature of the landscape of the western United States. It is a common bird throughout its range, which extends from Oregon southward into Lower California and western Mexico. Eastward its range extends to Colorado and the western part of Texas. It is one of the best known of the birds of southern California, where it is often called the California finch or linnet. The brightly colored plumage of its head has also given it the name Red-headed Linnet. This bird is better known in many localities by the names Burion and Crimson-fronted Finch.

The House Finch is not particular in the selection of a site for its home, and will build "anywhere, from the limb of any tree to the side of a haystack, or in a tin can on a porch." Neither is it particular in the choice of building materials, using those which are furnished by its environment. Though the nests are usually constructed with coarse grasses or weeds and lined with soft fibers, hair or fine roots, the bird may use straws, strings, small roots, strips of bark fibers, and hair in the outer wall, and feathers for the lining. It has been known to preëmpt the unoccupied nests of other birds, such as those of the oriole, the cliff swallow, and also woodpecker holes.

Its song is lively and varied, and is heard throughout the year wherever the bird is a constant resident. When caged, they are called California linnets, and they seem to thrive in captivity.

FROM COLL. CHI. ACAD. SCIENCES.

HOUSE FINCH.
(Carpodacus mexicanus frontalis).
About ⅔ Life-size.

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RED CROSSBILLS.
⅔ Life-size.

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Though the house finch feeds on the seeds of the wild mustard and of other wild herbaceous plants, as well as on the seeds of the cottonwood and other trees, it is also very destructive to the seeds, fruits, and tender young plants of gardens. As it enjoys the society of man and seeks his protection, when abundant it is often very destructive in his cultivated grounds, and gains only his enmity.

CROSSBILL

The American Crossbills, or Red Crossbills, are great wanderers. Their appearance in any locality is erratic, and, while we consider them as a winter resident in the United States, we should not be surprised to encounter them during any month of the year. Their range seldom extends beyond the southern boundary of the States bordering the Great Lakes. The males are considerably brighter in color than their mates. The feathers are marked with red only on the tips, and at close range the observer might not feel justified in calling them red crossbills. Their habits remind one of a parrot. In moving about the trees they often progress by means of both feet and bill. It is not an uncommon occurrence to see them grasp a twig in their beak and thus pull themselves along the branch. When cracking seeds or when eating fruit, the morsel is sometimes held in the claw as they eat while perched on one foot.

The formation of the freak beak facilitates the removal of seeds from the cones of the various coniferous trees. As many of these trees do not bear cones some years, the crossbills are of uncertain occurrence. Their movements are

never hurried by frigid weather. A few years ago one of my correspondents discovered a colony of crossbills comprising both varieties, the red and white-winged, nesting in the virgin forests of Nova Scotia. The birds were sitting upon their nests in February, when the temperature was 10 to 20 degrees below zero.

I have a nest and four eggs of each species, sent me from this locality. The nests are of broken twigs, green moss, and hair, matted together and warmly lined with moss and fur. The nests in this colony were placed in coniferous trees at elevations ranging from twenty to sixty feet.

The Western form of the crossbill has been known to nest in the higher altitudes of Montana. Some years ago, while spending the early spring and summer in eastern Michigan, a number of crossbills were wandering about a large grove of pine and spruce. We hoped for an opportunity to study the home life of a pair of these birds, which had begun to nest in a remote corner of the college campus, but a sudden rise in the temperature caused the crossbills to make a hasty departure for the North.

I was playing golf one August afternoon, when I noticed a sparrow-like bird bathing in a pail of water. I was surprised to discover that the unsuspicious visitor was a red crossbill. I could not account for his appearance in Chicago at that time of the year, but the incident is in keeping with the eccentric nature of the species.

"When feeding they have a short, whistled call-note; they take wing in a body, and their undulating flight is accompanied by a sharp clicking or whistled note. Their song is varied and pleasing but not powerful."

WHITE-WINGED CROSSBILL.
(Loxia leucoptera.)
About ¾ Life-size.

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THE WHITE-WINGED CROSSBILL*

The common name Crossbill, or, as the bird is sometimes called, Crossbeak, describes the peculiar structure of the bill, which marks them as perhaps the most peculiar of our song birds. The bill is quite deeply cut at the base and compressed near the tips of the two parts, which are quite abruptly bent, one upward and the other downward, so that the points cross at an angle of about forty-five degrees. This characteristic gives this bird a parrot-like appearance.

Their peculiar bills are especially fitted for obtaining their food, which consists to a great extent of the seeds of cone-bearing trees, such as the pine, the hemlock, and the spruce.

The two sexes vary in color, the body of the male being a dull carmine-red, which is brighter on the rump, and that of the female is brownish, tinged with olive-green and with brownish-yellow on the rump. The young males are similar in color to the females, but pass through a changeable plumage while maturing.

The crossbill usually builds its nest in a cone-bearing tree and does not always choose the most inconspicuous locality. The nest is generally constructed of rather coarse twigs and strips of birch or cedar bark and lichens. This is lined with hair, the softer fibers of bark, fine rootlets, grass, and feathers. The whole nest is saucer-shaped and about four inches in diameter, outside measurement, by one and one-half in depth. Authorities tell us that the eggs are usually three in number. In color they are a pale blue,

nearly spotless at the smaller end, but at the larger end marked with irregular streaks or dots of lavender or reddish-brown. The eggs are small, about eight-tenths of an inch long by nearly six-tenths in diameter.

GRAY-CROWNED ROSY FINCH

By a recent committee of the American Ornithologists' Union this bird was given the name of Gray-crowned Rosy Finch, instead of gray-crowned leucosticte. In the United States and Canada we have several varieties of the leucosticte, but they are chiefly confined to the western portions of the continent. Members of the Alpine regions, like the ouzels and the longspurs, they are social little fellows.

Their choice of territory for breeding purposes is in keeping with those of the evening grosbeak and white-tailed ptarmigan in nesting in the far North or in the highest mountains. The birds spend most of their time upon the ground, collecting their food of seeds and insects.

Little has been written regarding the rosy finch and its near allies, chiefly because their summer range takes them to the more inaccessible mountain regions, where collecting is difficult, unless a small number of naturalists organize an expedition for that purpose.

The nest of the leucosticte, constructed almost entirely of grass, is placed in crevices of the rocks, under boulders, or on little ridges at altitudes above timber line. Like the eggs of swifts, owls, petrels, and other birds which nest in dark places or in crevices, they are white, unspotted.

GRAY-CROWNED LEUCOSTICTE.
(Leucosticte tephrocotis.)
Life-size.

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REDPOLL.
(Acanthis linaria).
About Life-size

REDPOLL

The Redpoll might properly be called the American linnet. In general habits and appearance these birds resemble little sparrows, but they have the distinctive undulating flight possessed by the goldfinch, and a little call note which accompanies each downward swoop. Like the Bohemian waxwings and American crossbill, their summer home is in the fur countries, but occasionally they have been known to appear in the northern portions of New England. During severe winters they may be observed about the Great Lakes region of Illinois and Indiana, about the same time we look for the hardy pine grosbeak or jolly snowflake and the wary raven. Their appearance in the Central States is unquestionably due to the scarcity of food in more northerly latitudes. They are familiar birds, and resort to our gardens and orchards to feed on grass and weed seed. Easily tamed, they make interesting pets.

The eggs of this species found in collections, like those of the snowflake, usually come from Iceland. I have four eggs which were taken from a nest of grass and moss, lined with hair and feathers.

GOLDFINCH

The names Goldfinch and Wild Canary are applied indiscriminately by the casual observer to a score of different birds when some yellow warbler chances in the path of an inexperienced but enthusiastic bird admirer.

In the United States, our true goldfinch, or wild canary, remains with us throughout the year, and is known in various phases of plumage according to the season. The flight and flight note betray these birds after the fall molting, when they have left off the bright colors.

The charming ways of a devoted pair of these hardy creatures should render them easy of identification at all times. Few farm orchards or thistle patches are without a pair of these little birds. The male, with a voice equal in tone and quality to his beautiful plumage of black and yellow, finds a warm place in the heart of the bird-lover, naturalist, and agriculturist. The mating song is especially noticeable, coming so late in the year. These are not the only virtues possessed by the goldfinch, as he is of great economic value, because of the destruction of seeds of the thistle, the dandelion, and other noxious plants.

The female is less vivacious than her mate, but she has that small sweet call note so full of expression. Their voices have always impressed me as having something human about them. Goldfinches are fond of each other's society, and are usually found in flocks except when nesting. Their flight is conducted in a peculiar undulatory manner, as both sexes dart back and forth above the tree tops whose dense foliage shelters many a nest of treasures. Twittering incessantly while on the wing, their life appears one perpetual round of happiness. Their mating song is beautiful, and is striking, as it is heard after most other song birds are silent for the year.

In July or August, when thistle-down is floating in the air, the female usually selects for a nesting site the crotch of

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GOLDFINCH.
(Spinus tristis).
⅞ Life-size.

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NEST OF THE AMERICAN GOLDFINCH

½ Life-size.

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ARKANSAS GOLDFINCH.
(Spinus psaltria).
Life-size.

a fruit or shade tree, often close to dwellings. Indian hemp, vegetable-down, and plant fibers are securely woven and matted together, forming a substantial, broad-brimmed, deeply hollowed nest, into which a bountiful supply of thistle-down is placed. The nest is usually situated within twenty feet of the ground. They often nest on the tops of thistles, from which habit, and because of fondness for seeds and down, they often take the name thistle bird. Three to six faint bluish-white eggs are laid. The period of incubation is two weeks.

The nest of the goldfinch here illustrated was built in an oak shrub, five feet from the ground, and was taken September 1, 1901. At this late date, incubation had only commenced, and, although the timber about the nesting site swarmed with migrants passing southward, Mother Goldfinch expressed no anxiety over the late condition of her household affairs.

THE ARKANSAS GOLDFINCH*

This bright and sprightly bird enlivens the shrubby ravines and weedy places from Oregon southward through the United States, and from the Pacific Coast eastward into Colorado. Throughout its range it is quite common, and nests on the plains and also in the mountains to a distance of nine thousand feet. Abundant in many mountainous regions, it has been given the name Rocky Mountain Goldfinch, and the olive-green color of the plumage of its back has given it the very appropriate name Arkansas Green-backed Goldfinch.

Like the common thistle-bird, it has a social disposition, and feeds with its fellows in flocks of a greater or less number. Not infrequently several individuals will alight on the same plant and immediately begin a diligent search search for their food of seeds. Active and of a seemingly impatient temperament, it seldom remains long in any one locality, yet a garden rich in sunflower blossoms or a field full of blooming thistles furnishes so tempting a larder that a flock may patiently labor therein for some time, gathering an abundance of goldfinch dainties.

Its notes are similar to those of the thistle-birds. "The ordinary note is a plaintive, mellow, whistling call, impossible to describe, and so inflected as to produce a very mournful effect." While pursuing its undulating flight, it utters a sweet song, which is in harmony with the rise and fall of its onward motion, and is indicative of its sweet disposition. Its nest is a dainty structure built of fine bark and other vegetable fibers, fine grasses, and moss, compactly bound together and quite thickly lined with plant down.

PINE SISKIN

The Pine Siskin, or Pine Finch, is with us merely as a winter visitant. It occurs throughout the continent, breeding mostly north of the United States. At first glance this bird suggests one of the sparrow flock, but the siskins are less quarrelsome, more dignified, and partial to budding trees or wheat fields. A captive siskin in the possession of the writer shows great intelligence, and eats freely from the hand. His cage contains a large wheel, in which the bird

PINE SISKIN.
(Spinus pinus).
Life-size.

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SNOWFLAKE.
(Plectrophenax nivalis.)
Linnæus.

revolves with great rapidity, hopping from perch to perch. He enjoys singing in an undertone, apparently only for the benefit of himself.

In the wild state siskins show a fondness for coniferous trees, and often move about in company with the redpolls and purple finches. It is erratic in its movements, like the crossbill.

The eggs of the siskin are pale blue, delicately marked on the larger end with spots of black. These are placed in a nest of stems, hair, rootlets, and moss, matted together and placed in the branch of a tree, often at considerable height from the ground.

SNOWFLAKE

The Snowflake ranges throughout the northern part of the northern hemisphere, breeding in Arctic regions; south in winter to Illinois and Pennsylvania.

The snowflake, or snow bunting, is the true snow bird. It is a sociable creature, visiting the Great Lakes region during our severe weather, in company with longspurs and horned larks. Like the snowy owl, the range extends to the far North. The food consists principally of weed seeds, which they gather about meadows, pastures, and stubble land. Particularly fond of the black bind weed and foxtail grass, they are a most useful bird. In their evolutions they present a pretty sight, and have a pleasant, mellow chirp which is quite impressive when uttered simultaneously by several score of throats.

The little fellow should be readily distinguished from

all other finches, as it is the only white form. It is strictly terrestrial, never alighting in trees, but is sometimes seen on rail fences or on the roofs of outbuildings. Like the horned lark, it walks and does not hop. Snowflakes are of an optimistic disposition, considering the scarcity of suitable food during our severe weather, which scarcity often forces them to visit our homes and barnyards. Nevertheless, during zero weather they may be seen playfully chasing each other over the snowdrifts, as do the bobolink during the balmy days of June. But few American collectors have ventured to the far North, where this little bird breeds. Oologists usually obtain the eggs from Iceland. The eggs, numbering four to seven, are pale greenish-white, lightly blotched with pale brown.

THE LAPLAND LONGSPUR*

The Lapland Longspur is a bird that delights in the fresh and bracing air of the Arctic regions of both continents. There it builds its nest, rears its young, and voices its happiness in song. Loving the cool atmosphere of the North, it migrates southward only when its food supply of grain and other seeds is exhausted or becomes covered with snow. During the winter months they are abundant in the interior of the United States as far south as Kansas, and are not uncommon in Texas.

The Lapland longspurs are highly gregarious. They associate with the horned larks and the snowflakes, though they range somewhat farther south in winter than the latter birds. Not infrequently, when a flock of horned larks is

FROM COL. CHI. ACAD. SCIENCES.

LAPLAND LONGSPUR.
(Calcarius lapponicus).
Life-size.

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FROM COL. T. M. [illegible]

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SMITH'S LONGSPUR.
(Calcarius pictus).
About ¾ Life-size.

passing overhead, the presence of the longspurs is revealed by their quiet but characteristic twitter. Like the snowflake, the hind claw is greatly developed, and it is this characteristic that has given the bird of our illustration its common name.

Mr. Montague Chamberlain, writing of the longspurs in Greenland, speaks of their song, which he describes as "not very long, but has a fine flute-like tone, and though agreeable to the ear, is rather melancholy, as all the notes of this bird are." Continuing, he says: "There is no variation in the song, nor is it repeated with great frequency. It is, however, the finest heard in these wilds."

The nest of this attractive bird is placed on the ground, under tufts of grass or bunches of small willows. It is constructed with moss and fine grasses and lined with grasses, and frequently, also, with feathers. The female is a close sitter and relies on the color of her plumage and the position of her nest for protection. She will sometimes remain on her nest until nearly trodden on.

SMITH'S LONGSPUR

Longspurs have the nail on the hind toe remarkably developed, enabling the birds to scratch in weedy sections for various seeds and insects. Longspurs are found in flocks, except when nesting. They visit the central portions of the United States, often in company with horned larks and snowflakes. They are sociable little fellows, often calling to each other as they move over the snow-covered prairies in immense flocks.

Smith's longspur, or the painted longspur, as it is frequently called, may be found about the southern part of the Great Lakes region from November until April. It is a handsome bird with a black and white head; the rest of the plumage is a rich coppery brown. The female is decidedly paler and inconspicuous. The territory through the Saskatchewan and Mackenzie River regions is the breeding-grounds of the painted longspur. Longspurs have been met with in summer as far north as the Arctic Coast and upper Yukon Valley; in winter they reach as far south as Tennessee and northern Texas.

I have four eggs taken by a missionary in the Mackenzie River region. They are clay colored and clouded with obscure blotches of dark purplish-brown. The nest was in a tussock of grass and composed of moss and fine stems. The nests are sometimes lined with a few large feathers from the wild fowl that breed in the same territory.

THE ENGLISH SPARROW*

The English Sparrow was first introduced into the United States at Brooklyn, New York, in the years 1851 and '52. The trees in our parks were at that time infested with a canker-worm, which wrought them great injury, and to rid the trees of these worms was the mission of the English sparrow.

In his native country this bird, though of a seed-eating family (Finch), was a great insect eater. The few which were brought over performed, at first, the duty required of them; they devoured the worm and stayed near the cities.

ENGLISH SPARROW.
Life-size.

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VESPER SPARROW.
(Pooecetes gramineus)
½ Natural size.

With the change of climate, however, came a change in their taste for insects. They made their home in the country, as well as in the cities, and became seed and vegetable eaters, devouring the young buds on vines and trees, grass-seed, oats, rye, and other grains.

Their services in insect-killing are still not to be despised. A single pair of these sparrows, under observation an entire day, were seen to convey to their young no less than forty grubs an hour, an average exceeding three thousand in the course of a week. Moreover, even in the autumn he does not confine himself to grain, but feeds on various seeds, such as the dandelion, the sow-thistle, and the groundsel, all of which plants are classed as weeds. It has been known, also, to chase and devour the common white butterfly, whose caterpillars make havoc among the garden plants.

The good he may accomplish in this direction, however, is nullified to the lovers of the beautiful by the war he constantly wages upon our song birds, destroying their young and substituting his unattractive looks and inharmonious chirps for their beautiful plumage and soul-inspiring songs.

VESPER SPARROW

The true form of the Vesper Sparrow, Bay-winged Bunting, or Grass Finch ranges from the plains eastward across the United States to southern Canada. The territory known as the Great Plains northward into Canada is inhabited by a sub-species known as the western vesper sparrow. In the Northwest, through Oregon, Washington,

and portions of the Canadian provinces, another species called the Oregon vesper sparrow occurs.

Like the junco, the vesper sparrow may be recognized by the white outer tail feathers. It spends most of the time on the ground, rising to fence posts and low trees to sing the evening carol. I have often thought that the song of the vesper sparrow is sweeter than that of any other sparrow. It may be heard, long after sunset, coming across the fields when the little screech owl and the whip-poor-will are calling. Pastures, orchards, grain fields, and the right-of-way along railroads are frequented by the grass finch. It feeds almost exclusively on weed seeds, and is, consequently, beneficial to agriculture.

The nest of grass, stems, and rootlets, lined with grass and hair, is placed on the ground. A little hollow is scraped at the base of a thistle, mullein, other weed stalk, or hill of corn. The female sits close and offers little protest when disturbed. The four bluish-white eggs are blotched and spotted with reddish-brown. Two broods are reared in a season.

THE SAVANNA SPARROW*

"The Savanna Sparrow is one of those inconspicuous little birds which hide in the grass or run stealthily along the fences or furrows, having nothing special in their appearance or habits to attract particular attention." These are the words of Dr. Robert Ridgway regarding this retiring but useful little bird. In its habits it very closely resembles its relative, the vesper sparrow. Both frequent meadows and nest on the ground. Not infrequently, when

SAVANNA SPARROW.
(Ammodramus sandwichensis savanna).
Life size.

GRASSHOPPER SPARROW.
(Ammodramus savannarum passerinus).
Life-size.

walking through a meadow, one will be startled by the sudden whirr of wings as one of these sparrows flies away from a spot almost beneath his feet. Its habits are decidedly terrestrial, and it is not infrequently called the ground sparrow.

The Savanna sparrow is an abundant species throughout the eastern portion of North America, breeding in the northern United States and Canada and wintering in the Southern States, Mexico, and the adjacent islands. Near the Atlantic Coast, where it is a common resident, its favorite feeding-grounds are the salt marshes. Here its food consists of small mollusks, as well as of insects and grass seeds.

The nest of the Savanna sparrow is constructed on the ground, in hollows under the protecting shade of a tussock of grass or a clump of weeds. The materials used in building this simple home are usually grasses and fine roots or moss neatly twined together and lined with very fine grass and hair. Not infrequently two broods are raised in a season.

Mr. J. Dwight says: "The song is insignificant — a weak, musical little trill following a grasshopper-like introduction, is of such small volume that it can be heard but a few rods. It usually resembles tsip-tsip-tsip-se-e-e-s'r-r-r."

THE GRASSHOPPER SPARROW*

This little bird of the meadow and hayfield is quite easily identified by the marked yellow color at the shoulders of the wings, the yellowish color of the lesser wing coverts,

the buff-colored breast, and the orange-colored line before the eyes. Its home is on the ground, where its retiring habits lead it to seek the protecting cover of tall grass and other herbage. As it is not often seen except when flushed, or when it rises to the rail of a fence or to the top of a tall spear of grass to utter its peculiar song, it is often considered rare. It is, however, a common bird in many localities of its range, which covers the whole of eastern North America, where it builds, upon the ground, its nest of grass lined with hair and a few feathers. It nests as far north as Massachusetts and Minnesota and winters in the Southern States and the adjacent islands.

This bird was given the name Grasshopper Sparrow from the fancied resemblance of its weak cherup—"a peculiar monotonous song"—to the shrilling produced by the long-horned grasshopper. However, the song often begins and ends with a faint warble. Mr. Chapman says that these notes "may be written pit tuck zee-e-e-e-e-e-e-e-e."

The name of this little bird is not only appropriate because of its song, but also on account of its food. A very large percentage of its food consists of grasshoppers.

In rural districts it is seldom called a sparrow, and is more commonly called grass-bird, ground-bird, or grasshopper-bird. Another appropriate name is yellow-winged sparrow. All these names well portray its habits and characteristics. Its flights are short and rapid, but "on the ground or in the grass it runs like meadow mice to elude the presence and notice of intruders."

Both sexes bear the responsibilities of brooding and their home life seems to be one round of contentment.

FROM COL. CHI. ACAD. SCIENCES.

LECONTE'S SPARROW.
(Ammodramus leconteii.)
About Life-size

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"Although the male seeks to win the affections of his lady love by persistently shrilling near her the story of his passion, he generally represses his love trills near the home which his mistress has established."

THE LECONTE'S SPARROW*

The Leconte's Sparrow has an interesting history. It was first discovered and named by Audubon in 1843. Later his account seemed almost a myth, for no more individuals were taken, and even the specimen on which he based his published report of the new species was lost. It was not seen again until Dr. Coues rediscovered it in 1873, obtaining his specimens on the Turtle Mountain, near the border of Dakota.

Of their habits Dr. Coues says: "In their mode of flight the birds resemble wrens; a simile which suggested itself to me at the time was that of a bee returning home laden with pollen; they flew straight and steady enough, but rather feebly, as if heavily freighted for their very short wings."

Its range is quite extensive, for it is found from the great plains eastward through Illinois and Indiana and from Manitoba southward. During the winter months it frequents the states bordering the Gulf of Mexico. This sparrow is often seen in the stubble of grain fields which have become covered with grass and low weeds, to the cover of which it will retreat when frightened. In this respect it resembles the grasshopper sparrow, and, like it, is easily overlooked. Mr. Nelson found it on moist prairies that

were covered with a growth of coarse grass. It is also frequently seen in the swampy prairies of the Mississippi bottom lands.

Mr. Oliver Davie quotes the following description of the bird's habits from an observer who studied their habits in Manitoba, where they nest extensively: "Leconte's sparrows are fairly numerous in Manitoba. Their peculiar note can be heard both day and night in fine weather; the only sound I can compare it to is the note of the grasshopper."

The nests are described as concealed in a thick tuft of grass and are rather deep and cup-shaped. They are constructed of fine grass and fibers.

Though this elegant little sparrow baffled bird-lovers for so many years, it is now known to be abundant in many localities, and it is only because of its peculiar and retiring habits, living, as it does, in grassy places not easily accessible, that it is not more often observed.

LARK SPARROW

The Lark Sparrows are found in the central portions of the United States from Dakota, Nebraska, and Kansas eastward to Michigan and Illinois. They breed from Texas northward into Wisconsin, North Dakota, and casually east to New York and New England. They migrate south in winter to Florida and the Gulf States.

The lark bunting is one of the finest songsters among our native sparrows. Twenty years ago they were a common summer resident about northern Illinois, but of late years they have become rare. The sub-species described as

LARK SPARROW.
About Life-size.

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HARRIS'S SPARROW.
(Zonotrichia querula).
Life-size.

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the western lark sparrow, occurring west of the Mississippi, appears to be more abundant than the eastern form.

Mr. Ridgway describes the song as being composed of a series of chants, each syllable rich, loud, and clear, interspersed with emotional trills.

These birds nest in May and June. The nests are built on the ground, in weedy fields or neglected pastures. One of their favorite nesting spots when the birds were common about Chicago, was the right-of-way between the railroad bed and the fence enclosing the tracks.

Mr. E. R. Ford, one of Chicago's advanced bird students, presented me with a nest of four eggs taken May 31, 1891, along the railroad track in what is now the subdivision of Argyle Park, Chicago. The nest was composed of wood fiber, rootlets, and grass, lined with horse hair. The four eggs have a white background and are beautifully marked with black scrawls and lines, suggestive of the Baltimore oriole or red-winged blackbird.

THE HARRIS'S SPARROW*

Dr. Coues has said of the Harris's Sparrow that it may be regarded as the most characteristic bird of the Missouri region. Its range is mainly confined to the central United States, reaching from Illinois on the east to middle Kansas and the Dakotas on the west. North and south its range extends from the interior of British America to Texas. During its migrations it travels in small flocks, which suddenly appear in patches of shrubbery, where it feeds for a time and soon disappears as quietly and suddenly as it

came. It enjoys the undergrowth and shrubs that are found in ravines and along the banks of streams. An interesting habit, that does not fail to make Harris's sparrow a conspicuous object, is that of perching, when disturbed, on some high branch of a shrub, in order that it may obtain an uninterrupted view of its surroundings and of the intruder.

An observer who has studied the habits of the species as it passes through the state of Iowa during its migrations says: "This beautiful sparrow is one of the commonest of the Fringillidæ that pass through the state in spring and fall, associating at such times with the other sparrows and finches and frequenting similar haunts. Its notes in the fall are a simple loud chirp, not distinguishable from that of the white-throated sparrow, and occasionally a low sweet warble," its music being chuckling and contented. Goss describes its song as composed of "pleasing, plaintive, whistling notes in musical tone like the white-throat, but delivered in a widely different song."

This sparrow is of large size and when dressed in its summer plumage it is a strikingly beautiful bird. The glossy black of its crown and throat are made prominent by the "bright coat of the usual sparrow mixture of colors" that covers the remainder of the body.

But little is known of the breeding habits of this sparrow. Its nests are built in the northern part of its range, probably only in the interior of British America. Its nest is made of bark and grass and located in small shrubs or weed stalks. The eggs, which are of a whitish color, are thickly spotted with brown.

WHITE-CROWNED SPARROW.
(Zonotrichia leucophrys).
Lifesize.

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WHITE-CROWNED SPARROW

Probably the handsomest of our American sparrows, they range from the Atlantic to the Rocky Mountains, spending the winter many miles south of their breeding-grounds. The birds rarely nest in the United States, except in Alpine regions of the Sierra Nevadas and the Rocky Mountains. They generally resort to the moist sections of Labrador, Newfoundland, and west across the northern portions of Quebec, Ontario, and Manitoba. Their nests are of grasses, on the ground or in bushes. Four or five pale greenish-blue eggs are laid. They winter throughout the United States and south into Mexico. The bird reminds one of the white-throated sparrow, or peabody bird, but the White-crowned Sparrow has no white on the under parts. It is less common than the white-throated sparrow and moves northward usually in May, sometimes lingering in the Great Lakes region until June 1st.

Ernest E. Thompson describes the song as resembling that of the white-throated, with a peculiarly sad cadence and in a clear, soft whistle that is characteristic of the group. Another peculiarity of this species is its habit of singing some of its sweetest refrains during the darkest hours of night.

The bird is of great economical value, subsisting during its migrations almost exclusively on the seeds of various weeds obtained in the fence corners, along hedges, and about gardens. The young when first hatched are fed upon insects.

THE GOLDEN-CROWNED SPARROW*

It is very disappointing to the lover of the beautiful in nature that the exquisite Golden-crowned Sparrow is content to remain in so small an area as its range covers. One need hardly wonder, however, that it is attracted to that narrow strip of country lying along the Pacific Coast from Alaska to southern California. There this sparrow finds on the foothills and on the sides of the ravines and canyons a luxurious growth of shrubbery unmarred by the hand of man. There, also, unmolested in the quiet solitude of nature, it finds an abundant supply of food.

It is a shy bird during the breeding season, but later on, when with its young and its only care is that of obtaining food, it becomes more fearless and will often visit the vicinity of dwellings. It resembles the white-crowned sparrow of eastern North America, but may be easily distinguished from that bird by its golden crown. During the cooler months it associates with the white-crowned sparrow, though it is much less familiar and not as inclined to visit inhabited localities.

Observers describe the nest of the golden-crowned sparrow as being composed of the "coarse stalks of weeds and lined internally with fine roots." Mr. E. W. Nelson says that "Its breeding-ground in Alaska is in the alder patches along the hillsides, where the various bush-loving species make their homes in the matted thickets, well protected from birds of prey and most other foes by an almost impenetrable wall of gnarled and twisted branches."

FROM COL. CHI. ACAD. SCIENCES.

GOLDEN-CROWNED SPARROW.
(Zonotrichia coronata).
⅜ Life-size.

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WHITE-THROATED SPARROW
(Zonotrichia albicollis
Adult Female

Many observers speak of its song as only an occasional "chirp." During the spring and autumn migrations the golden-crowned warbler passes through the states of Oregon and Washington. Writing of its appearance in those states, Mr. William Rogers Lord says: "Many persons will observe a sparrow, beautiful to the eye and, should the occasional song be heard, charming to the ear."

THE WHITE-THROATED SPARROW*

The White-throated Sparrow is one of the handsomest of the sparrows. It is one of the exquisite parts of nature. Migratory in habits, its range covers all of eastern North America, nesting from Michigan and Massachusetts northward and wintering from the latter state southward to Florida.

Its scientific name is descriptive of the marked color characteristic of its crown and throat. Zonotrichia means hair or crown bands, and albicollis is from the Latin, meaning white-throated. It is sometimes called Peabody bird, especially by the New Englanders, with whom Peabody is an important traditional name, and they hear the birds say in its song, "I-I Pea-body, Pea-body, Pea-body." This rendering of its plaintive song is a caricature, yet the name clings to the bird even in other parts of the country. The reserved manner of its movements would hardly lead one to expect that a beautiful song could flow from its white throat.

The nest, too, is a neat creation of small roots, coarse grass, bark, and moss and lined with a bedding of fine

grass and moss. It is usually placed on the ground in fields or open woods, where it is protected by the taller grasses. Sometimes, however, low bushes or the lower branches of trees are selected. So careful is the white-throat in the constructing of its nest not to disturb the surrounding vegetation, and so neutral is the color of the material used, that one may hunt for a long time without finding it unless he luckily stumbles upon it.

TREE SPARROW

Many cold winter days when the snow lies in drifts along the hedges have I found the little tree sparrow the only evidence of bird life. Of the size of our common chipping sparrow, it is readily distinguishable by a small black spot in the center of the breast.

Tree sparrows breed in the far north, along the ice-bound coast of Labrador and beyond. They are with us in the Great Lakes region from November until late March, a sociable little fellow usually traveling in flocks. They have a faint call note, a mere chirp; but their song, which is often poured forth while the days are short and cold, is a very pleasing little ditty.

Probably no other sparrow is more beneficial. In every waste spot where the sod has been disturbed, unless kept down, rank weeds spring up and often form dense thickets. These fields afford food and shelter for many winter birds, enabling them to withstand the cold and the snow. Visiting one of these growths on a cold January morning, one is surprised at the animation of the busy little tree sparrows

OM COL. CHI. ACAD. SCIENCES.
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TREE SPARROW.
(Spizella monticola)
About Life-size.

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CHIPPING SPARROW
About Life-size

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as they move rapidly about devouring on an average each one-quarter ounce of noxious seeds per day.

The eggs of the tree sparrow are pea-green, spotted and speckled with reddish-brown. Three to five eggs are laid in the warm little nest constructed of grass, rootlets, and hair. The nests are placed in mossy situations on the ground or in a little shrub at a low elevation.

The western tree sparrow, very similar in plumage and habits, is the form occurring from the great plains northward to Great Slave Lake, and even to Alaska.

CHIPPING SPARROW

The Chipping Sparrow ranges throughout eastern North America, breeding from the Gulf to Newfoundland and Great Slave Lake, wintering in the Gulf States and Mexico.

The "chippy" is the dooryard sparrow, or was until the unwelcome English sparrow put in an appearance. The monotonous little trill may be heard about our porches, in the vines, lilac bushes, and hedges. Fond of little coniferous trees, three or four pair often spend the summer about a single farmhouse.

The nests are composed almost entirely of horse hair, with outer covering of rootlets. By some the little fellow is known as the hair bird. These nests are usually placed in a little cluster of branches not to exceed twenty feet above the ground, often as low as four feet. Orchard trees are favorite nesting sites, and the birds also are to be found in the berry patches occupied by the indigo bunting and field

sparrow. Some years ago I had the unusual experience of finding four nests of the chipping sparrow within a radius of 150 yards, all of which were placed on the ground, an unusual occurrence, especially as three of the nests were practically in the shade of orchard trees.

Four blue eggs, dotted at the larger end with black, are laid in May. A second brood is often reared in July.

FIELD SPARROW

The range of the Field Sparrow is eastern North America, breeding from North Carolina to Quebec and Manitoba and wintering from southern Illinois and Virginia southward.

In appearance this bird reminds us of the chipping sparrow, but is slightly smaller. Gardens, brushy pastures, and second-growth timber are favorite resorts of this bird, which is very common east of the plains in temperate North America. Their song, like that of the indigo bunting and dickcissel, is not uttered at any particular time of day, but we are apt to hear the little fellow singing when the sun is shining the hottest. The rather wierd notes are in the form of a prolonged musical trill, though subject to great individual variation.

Though comparatively unsuspicious, the field sparrow is not so familiar about the haunts of man as some other varieties. It prefers a little patch of berry bushes or growth of haw where the grass and weeds are long and thick.

The nests are often placed in tussocks of grass at the base of a bush or among the twigs of a shrub at low eleva-

FIELD SPARROW

SLATE COLORED JUNCO.

tions. Long fine grass is used in constructing the nest. The lining may consist largely of horse hair. The background of the three or four eggs is pale bluish-green and the markings are in the form of reddish spots, chiefly at the larger end. Two broods are often reared in a season. In the Great Lakes region these birds arrive from the south about the middle of April and depart in October, though their song is not often heard after the middle of July.

SLATE-COLORED JUNCO

The Junco ranges throughout North America, breeding from northern Minnesota and New York northward and along the Alleghany Mountains to Virginia, wintering southward to the Gulf.

This bird is commonly known as junco, or black snowbird. This is the only representative of the large junco family east of the Rocky Mountains. Like the vesper sparrow, the outer tail feathers are white, serving as a convenient field mark. The upper breast is a dark mouse color and the upper parts in the male are slaty gray, usually slightly lighter than the coloring on the breast. The plumage of the female is considerably lighter. The bill and legs are pinkish or flesh color.

Occasionally these sociable little fellows spend the winter in southern Wisconsin and northern Illinois and Indiana. Were it not for our snowfalls, we would undoubtedly have them with us as a winter resident. They feed upon the ground, faintly calling to each other in a low little chirp, occasionally bursting into a sweet song which is a favorite

melody during March and April, when the birds are moving toward their summer quarters.

They nest commonly in northern Michigan, Wisconsin, and Minnesota. In their summer haunts the junco retires to dense forests, building a nest in crevices along little ravines, under the roots of upturned trees, or among fallen logs where the country is almost inaccessible. Their demeanor is quite different from that of the migrating junco which visits our dooryards picking up the bread crumbs or feed about the barnyards.

The nest is composed of hair, rootlets, and stems. Three or four eggs are laid. The background is greenish-blue and the larger half of the egg is marked with red dots, often forming a wreath about the larger half of the shell.

These birds breed abundantly through Vermont, New Hampshire, Maine, New Brunswick, and Nova Scotia.

THE PINK-SIDED JUNCO*

Their sweet disposition and cheerful actions, rather than their song and brilliant colors, make the juncos attractive.

The juncos are birds of the mountain forests and are driven to the lower altitudes and warmer climates by the severe snows of the mountain regions. Except during the nesting season, they are decidedly gregarious birds, and will be seen in flocks varying from a dozen or more to several hundred individuals. Always active, they seem to be constantly moving, either in search of food or in happy play. They chase each other on the ground or in flight, uttering a short note at frequent intervals. "In their homes you find

PINK-SIDED JUNCO.
(Júnco annectens).
Life-size

SONG SPARROW

them more interesting than when in flocks, because they are now leading individual lives; but they are still the same trustful, gentle birds, ready to come into camp or to let you examine their nests." During the cooler seasons their food consists of seeds of weeds and grasses and the crumbs found in the dooryards. In the summer time, however, they destroy a large number of adult insects and their larvæ and eggs.

The Pink-sided Junco passes the summer season in the Rocky Mountain region of Idaho and Montana, where it makes a home among the pines. It has been found at an elevation of nearly ten thousand feet. Mr. Davie describes a nest that was found at an elevation of eight thousand feet. He says this "nest was under a shelving stone, in a little hollow dug out by the parents. It was rather large and compactly built, composed of coarse, dry grasses and with an inner lining of fine yellow straw and hair of the mountain sheep."

At the approach of winter these birds retreat before the icy storms of the mountains and the snows that cover the source of their food to the milder climate of Arizona, New Mexico, and northern Mexico.

SONG SPARROW

The range of the Song Sparrow is eastern North America, breeding from northern Illinois north to Hudson Bay, wintering from Illinois and New York to the Gulf.

Ernest E. Thompson says: "The song sparrow's vast range in a dozen varying climates, its readiness to adapt

itself to the different conditions in each of the regions it inhabits, its numerical abundance and steady increase while some of its family are dying out, its freedom from disease and vermin, and its perennial good spirits, evidenced by its never-failing music — all proclaim that it is indeed one of nature's successes.

"Its irrepressible vivacity and good spirits in spite of all circumstances are aptly illustrated by the fact that its song may be heard every month of the year and in all weathers; also by night as well as by day — for nothing is more common in the darkest nights than to hear its sweet chant in self-conscious answer to the hooting of the owl or even the report of a gun.

"It is never seen far from the water. Its alarm note is a simple metallic 'chip' which is very distinctive. But its merry chant — which has won for it the name of 'song sparrow' — is its best-known note. It is a voluble and uninterrupted but short refrain, and is perhaps the sweetest of the familiar voices of the meadow-lands. The song that it occasionally utters while on the wing is of quite a different character, being more prolonged and varied. Though so abundant, it cannot be called a sociable species. Even during the migrations it is never seen in compact flocks."

We should not infer from this bird's name that he is any more of a musician than the other varieties; in fact, he by no means ranks first as a songster in his class.

Probably no other bird has been dissected as much as this species. At last accounts the ornithologists, in compiling their check list of North American birds, decided that this little fellow varied sufficiently in minute feather mark-

ings to justify dividing him into about a dozen and a half different forms. We have, as a result, the song sparrow proper, inhabiting the region east of the Mississippi River to the states bordering the Atlantic; other forms are called the Dakota song sparrow, Samuel's song sparrow, mountain, San Diego, Alameda, rusty, sooty, desert, etc., etc. The difference, however, is not perceptible except when the exact locality is taken into consideration, and it requires a microscopic examination to separate them at last.

There is one species, however, which resembles this form but is entitled to be classed separately. That is the Aleutian song sparrow, a larger and darker-plumaged bird found only on the Aleutian Islands, off the Alaskan coast. Owing to the influence of the Japan current the climate on the islands is comparatively mild and the bird is a resident there the year round. Our song sparrows in the Great Lakes region would probably never migrate were it not for the scarcity of food during the winter months, when the ground is apt to be covered with snow and ice.

The song sparrow is partial to willow growths, and, no matter how early the willow stems brighten and the catkins fill, this species is hopping among their branches just before the sap of the hardy shrub is flowing upward.

Perhaps he is called song sparrow because he sings from more conspicuous places than many of our other sparrows. Perched on a naked twig or on a fence post, often within a stone's throw of our dwelling, he pours forth a short song which is a liquid chirp and trill.

The nests are often placed on the ground along little streams or in damp places. I have also found many nests

in hedges, and one or two among the crevices of decayed wood in an old stump. They seldom nest in trees unless they contain a cluster of low branches enabling the bird to construct her nest within four or five feet of the ground. Grass stems, hay, and horse hair are the principal materials used. The nests are bulky, but well cupped. Both birds assist in nest building. They utter a saucy little chirp when disturbed. The four or five eggs vary greatly in markings. The background may be white, bluish-white, or light green; the spots are red, dark brown, or lilac, often clustered and sometimes wreathed about the larger end.

Three broods are often raised in a season. The first nests are ready for occupancy by the last week in April, another set of eggs are laid about June 1st, and again in August we may expect to find the mother incubating.

This bird may be distinguished from many of our other resident sparrows by the heavily spotted breast and the dark brown feathers above.

THE SWAMP SPARROW*

Though the range of the Swamp Sparrow covers the whole of the northern portion of North America, it nests only in the northern United States and British America. There this timid sparrow seeks a site for his home in the "deep recesses of marshy thickets, environed with a canopy of tangled foliage, whose treacherous quagmire abounds in a luxurious growth of wild grasses." The nest is placed on the ground, and usually in low places, where it is sheltered by a tussock of grass. In its construction grasses, weed

SWAMP SPARROW.
(Melospiza georgiana).
Life-size.

FOX SPARROW.
(Passerella iliaca Merr.)
¾ Life-size.

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stems, leaves, and frequently bark fibers are woven together, and it is lined with finer materials of the same kind, often with the addition of some animal hair or vegetable down.

Here it raises its young, finds its food, and sings its simple, sweet song, every note of which indicates a happy disposition. Singing is a part of its nature, and even "a suggestion of the bird's watery home shows itself in the liquid quality of its simple, sweet note, stronger and sweeter than the chippy's, and repeated many times almost like a trill that seems to trickle from the marsh in a little rivulet of song."

The swamp sparrow is the handsomest of the smaller sparrows and its habits are quite like those of the better-known song sparrow — that delightful bird of the parks and dooryards. From the song sparrow the bird of our illustration may be easily distinguished by the even color of the plumage of the breast and the under side of the body, which is entirely free from dark-colored streaks and a dark-brown spot in the middle of the breast.

As the swamp sparrow seldom leaves its home in the marsh to seek food on cultivated grounds, it is, perhaps, of less economic value than many other sparrows. About half of its food consists of insects and the remainder is chiefly seeds.

FOX SPARROW

The Fox Sparrow, the largest of our true sparrows, breeds in Canada and winters from Virginia southward. It is found in the Great Lakes region during March and April, and we have it again in October, but it is less con-

spicuous in the fall. The birds are in full song during their spring migration and their joyous notes are very sweet and liquid. While a few of them stop in Newfoundland, most of them summer in Labrador and beyond to Hudson Bay. In spring the fox sparrow is found around thickets and woodsides, often with juncos; in fall it is usually seen along hedges and in weedy grain fields near shrubbery, scratching like a hen. Brush piles and thickets around swampy places are other favorite haunts while passing through the United States. They are very sociable birds and we regret their preference for the more northerly latitudes, where little opportunity has been afforded the bird-lover to effect a personal acquaintance during the mating and nesting season.

The nests are placed on the ground, securely imbedded in the moss found under the drooping branches of coniferous trees.

TOWHEE

The Towhee, Chewink, or Ground Robin is one of our common birds in the eastern United States, but many casual observers are not acquainted with it. It breeds from the Gulf into southern Canada, and winters from Virginia and Kentucky southward.

The head, throat, and upper parts, as well as spots on wing and tail, of the males are jet black. White patches occur also in the wing and tail feathers. On the sides of the breast, and almost concealed when the wings are folded, is a rich brown patch on either side. The females have the black replaced with dull brown. The male is a handsome bird with dark red eyes.

TOWHEE
(Pipilo erythrophthalmus).
½ Life-size.

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WHITE-EYED TOWHEE.
(Pipilo erythrophthalmus alleni)
Late sum.

How many times have I been passing through the timber when a low rustle of the leaves gave promise of a grouse or pheasant. I pause, again and again, only to be deceived each time by some industrious towhee. Towhees often jump backward, throwing the leaves in all directions, thus exposing the bare earth, where these useful birds pick up choice morsels in the form of insects, worms, and seeds.

"Chewing" is the call or alarm note and the song is suggestive of "Tow-he-eeeee," being uttered when the male mounts a low limb.

Brush piles, fallen logs, or neglected fence corners are favorite nesting covers for the chewinks. They often arrive from the south late in March, before the snow disappears, and nest building commences late in April. The nests are usually placed on the ground, flush with the surface, well concealed by a fallen branch, fern, or shrub. Sometimes a brush pile or low shrub appeals to them and they place their nests of stems and dry grass in these low elevations. From three to five eggs are laid. The background is pale bluish-white and the marks are in the form of minute specks and dots of reddish-brown. The cow-bird often deposits her eggs in the nest of this bird.

THE WHITE-EYED TOWHEE*

The White-eyed Towhee is a geographical variety of the northern towhee, or chewink. Its range is very limited and includes only the southeastern United States, where it is the most common in Florida. In Georgia and South Carolina it grades into the common towhee, which it closely resem-

bles, though it is somewhat smaller, has less white on the plumage of the wings and tail, and the iris is brownish-yellow or yellowish-white instead of red.

The Florida towhee, as the white-eye is frequently called, spends much of its time on the ground, under the shade of the dwarf palm, where it scratches among the leaves. In general it is a shy and retiring bird and is seldom seen far from its wooded retreats. It is so frequently seen among the saw-palmettos that it is often called the palmetto chewink, or towhee. "This southern towhee does not associate with the northern towhee, which winters in the south. The latter selects haunts of much the same nature as those in which it passes the summer, the former in heavy growths of scrub palmetto."

The call note of the white-eyed towhee sounds much like the syllables jo-ree, with the accentuation on the last syllable. Regarding its song, Mr. J. C. Maynrad says that it does not sing in winter, "but by the first of March the males may be seen on the highest boughs of the small live oaks, pouring forth their song, which is lower and sweeter than that of the red-eye. This outburst of song is the prelude to the breeding season, and soon the birds are busily engaged in constructing their nests."

Mr. Oliver Davie says that the white-eyed towhee has been found breeding as far north as South Carolina. Its nest consists of coarse weeds, pine needles, and grass, and is lined with finer grasses. It seems to nest both in pine trees, at heights from three to fifteen feet above the ground, and in the dense clumps of saw-palmettos. It has also been stated that the nest is sometimes built on the ground.

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ARCTIC TOWHEE.
(Pipilo maculatus arcticus).
½ Life-size

THE ARCTIC TOWHEE*

The Arctic, or Northern, Towhee is a bird of high altitudes and latitudes. Its breeding range is somewhat restricted, including the plains of the Platte, upper Missouri, Yellowstone and Saskatchewan rivers and the regions westward to the eastern slope of the Rocky Mountains. In the winter it passes southward, finally reaching the state of Texas. Throughout its range it frequents streams and shores that are bordered with bushy underbrush. In some localities, as in the valley of the Great Slave Lake, this species is very abundant.

"The Arctic towhee appears in the vicinity of Idaho Springs about the middle of May and in the course of a week or two becomes rather common, though never very abundant. It becomes rare above 8,500 feet, and above 9,000 feet disappears altogether, being most numerous from 7,500 feet down to the plains. In habits and appearance it is quite similar to the eastern towhee, but is much shyer and is easily frightened, when it hides in the bushes until all appearance of danger has passed by. It utters the 'chewink' of the eastern towhee, or a note almost exactly like it, though a little lower and more wiry."

The towhees obtain a large share of their food by scratching among the fallen leaves that lie upon the ground under the underbrush that they frequent. The Arctic towhee will respond to a whistled call, though it is not as inquisitive as the eastern species.

Its nest is placed on the ground, in a slight depression

scratched out by the bird, and is usually under the protecting shadows of shrubs. The nest, the rim of which is flush with the ground, is "strongly built of bark strips, blades of dry grass, and usually lined with yellow straw."

THE CALIFORNIA TOWHEE*

California, with its beautiful scenery and its wonderful variety of interesting forms of vegetable life, is the home of the Towhee of our illustration. Its range is long and narrow, including only that region which lies west of the Cascade and Sierra Nevada mountain ranges, from Oregon southward to the northern portion of Lower California. Like many other birds which are abundant and familiar, the California Towhee is known by several common names. Some of these are: Brown finch or towhee, Crissal towhee bunting, and canyon finch. The last name, though very commonly applied to the bird, seems quite inappropriate, for this towhee is found not only in the canyons, but also on the level country wherever there is a growth of trees or shrubbery. It also frequents the mountain sides to a height of over three thousand feet.

The California towhee is not only abundant, but it is also one of the most characteristic birds of the State whose name it bears. It belongs to a group of the finch family, which contains a number of species with terrestrial or semi-terrestrial habits. This group is represented in the eastern portion of the United States by a single species—the chewink, or common towhee. In the southern and western portions of our country, however, there are several species

CALIFORNIA TOWHEE.
(Pipilo fuscus crissalis)

CARDINAL.
(Cardinalis cardinalis).
¾ Life-size.

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and the genus reaches its greatest development in Mexico, where there are several kinds not found elsewhere.

Regarding its nesting habits, Dr. J. G. Cooper says that he found a large number that were "built in bushes, from two to four feet from the ground, and containing but three eggs, with the exception of one, which contained four." He also found nests that were built in low trees and in a vine growing over the porch of a house. However, these towhees vary greatly in the selection of a nesting site. Not infrequently the nest is placed on the ground, in hollow tree trunks or in crevices of rocks which are hidden by vegetation.

CARDINAL

The Cardinal, or true "Red Bird," is found in some form or phase of plumage from the Atlantic to the Pacific. It ranges south of the Great Lakes, in the Eastern and Central States. Resident wherever found, he is generally working his way northward, selecting river courses in reaching the regions about northern Illinois and Indiana. The males are handsome birds with dark red plumage; the females, although possessing the handsome crest carried by all cardinals, is much paler in plumage, having ashy-brown feathers similar to those worn by the scarlet tanager, indigo bunting, bobolink, and other female birds whose mates are conspicuously colored.

Cardinals are common inhabitants of the river bottoms about St. Louis and at points along the Illinois River one hundred miles below Chicago. During the winter months often two to six or more pairs will be found frequenting a

small thicket. Despite the fact that they are able to withstand cold weather, very few of them are found as far north as the Great Lakes region.

Their powerful bills enable them to crack the seeds and dissect fruits that other birds are unable to examine. They are birds of great economic as well as of poetic value. A small quantity of grain scattered about the dooryard in winter will readily attract these handsome birds and cause them to become permanent residents of a given locality of their range. The males have during breeding time a dozen distinct notes, and they may be heard whistling twelve months in the year. As one writer says, "The notes of the cardinals are clear and tender — far sweeter than the mellowest notes of fife or clarionet." Red-birds are easily captured and make admirable cage birds. Until our song-bird law went into effect cardinals were handled extensively by various song-bird dealers.

The nests are built in shrubs, vines, and young trees about residences in small towns and villages. The nests are of twigs, bark, grass, and leaves, lined with finer substances of the same. Three or four bluish-white eggs, heavily spotted with dark brown and lavender, are laid. The nests are usually not to exceed ten feet above the ground. The birds enjoy a thicket or dense growth of shrubbery similar to that inhabited by our catbird or brown thrasher. They raise two broods in a season, the male caring for the first brood while the female attends to nesting duties. They sometimes select for nesting sites shrubbery about porticoes, seemingly to avoid the blue jays. They are very restless when disturbed in their nesting.

ROSE-BREASTED GROSBEAK.
½ Life-size.

ROSE-BREASTED GROSBEAK

One of the handsomest of our common North American songsters, the male Rose-breasted Grosbeak may be readily identified by the bright rose-colored blotch on the breast. The same tone may be found on the under side of the wing in both sexes, but this is not clearly seen, and cannot be considered a sure field mark. The birds occur from the Atlantic west to the Great Plains and north into southern Canada. Shrubbery along streams or low saplings are favorite resorts for the grosbeak during the spring and summer months.

The beautiful rose-breasted grosbeak breeds in the northern half of the United States east of the Missouri River, but spends its winters beyond our boundaries. The beauty of the adult male is proverbial; the plumage is pure black and white, with a broad patch of brilliant rose color upon the breast and under each wing.

These birds are of vast importance to the agriculturist, as they destroy Colorado potato bugs, which so few of our birds will eat. When these beetles first swept over the land, and naturalists and farmers were anxious to discover whether there were any enemies to prey upon the pest, the grosbeak was almost the only bird seen to eat them. This favorite bird also destroys many other noxious insects. The vegetable food of the grosbeak consists of buds and blossoms of forest trees, and seeds, but the only damage of which it has been accused is the stealing of green peas. The writer has observed it eating peas, and has examined

the stomachs of several that were killed in the very act. The stomachs contained a few peas, but enough potato beetles, old and young, as well as other harmful insects, to pay for all the peas the birds would be likely to eat in an entire season. It deserves full protection. A small potato field was so badly infested with the Colorado beetles that the vines were completely riddled. The grosbeaks visited the field every day, and finally brought their fledged young. The young birds stood in a row on the topmost rail of the fence and were fed with the beetles which their parents gathered. When a careful inspection was made a few days later, not a beetle could be found; so the birds had saved the potatoes.

"There is an exquisite purity in the joyous carol of the Grosbeak; his song tells of all the gladness of a May morning; I have heard few happier strains of bird music. With those who are deaf to its message of good cheer I can only sympathize." (Chapman.)

The male, though a fine songster, makes himself useful by relieving the female of the duties of incubation, often singing while on the nest. In molting, the feathers come off in patches, leaving the male a most woebegone bird and a silent one. The new coat of the male is a good match for the sparrow-like dress of the female.

The nests are placed at elevations not to exceed fifteen feet. They are loosely made of stiff stems and rootlets, very little soft material is used even in the lining. Three or four eggs are deposited in May or June. The background is deep greenish-blue and the marks are in the form of specks and spots of deep brown, chiefly at the larger end.

BLACK-HEADED GROSBEAK
Habia melanocephala).
Life-size

THE BLACK-HEADED GROSBEAK*

The Black-headed Grosbeak may be considered the Western representative of the rose-breasted species of the eastern United States. Its range extends from British Columbia and Montana southward into Mexico and Lower California. Throughout the larger portion of this district it is quite common. "It appears to shun the pine woods, preferring ravines wooded with deciduous trees and upgrown to shrubbery, as well as the thick willow copses that fringe the mountain streams." On the mountain sides it seldom ventures higher than eight thousand feet.

In its flight, feeding habits, and, in fact, in all its actions, it closely resembles its rose-breasted relative. It does not fly high, and during the breeding season the birds, as a rule, do not associate with each other to any great extent. In the fall, however, they gather in small flocks. Many people say that the rose-breasted grosbeak is the most beautiful singer of all the birds that frequent the Eastern States. The song of the black-headed grosbeak very closely resembles that of the Eastern species, except that it lacks some of the variety which is apparent in the latter's sweet-toned voice. The song of both species is often compared to that of the robin. The comparison must stop, however, with the consideration of the musical annotation of the two songs. The grosbeak's song has "a mellowness about it, and running through it is a rich undertone, which should charm every listener."

The nests are usually built in low deciduous trees or

occasionally in shrubs. They consist of twigs, herbaceous stems, and bark fibers very loosely woven together and lined with fine roots, grass, and hair.

Our illustration is that of the male, whose bearing is always both dignified and attractive. In life, "his body looks graceful as he sits upon his perch, singing his love-song, like a master-bird as well as a master musician."

BLUE GROSBEAK

The Blue Grosbeak is found on the Atlantic Coast in New England westward to the Great Plains. A paler form, known as the Western blue grosbeak, occurs in the Rocky Mountain range, south through New Mexico and Arizona. In the Great Lakes region of Indiana, Illinois, Michigan, and Wisconsin they are of rare occurrence, a shy but beautiful songster. They breed from thirty-eight degrees south into Mexico, wintering south of the United States.

This bird is probably more common in the Southern Atlantic States than in any other place. The favorite food is grain, especially rice; therefore the bird may be looked for where this cereal is cultivated. They have a remarkably strong, awkward-appearing bill, which enables them to crush the hardest seeds.

Neltje Blanchan says: "This bird has the habit of sitting motionless with a vacant stare many minutes at a time. This impresses one with the fact that the bird must be stupid, but they are exceedingly wary at times, and will not permit close inspection.

WESTERN BLUE GROSBEAK.

5/6 Life-size.

INDIGO BUNTING.
(Passerina cyanea, Linn)
About Life-size.

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"When seen in the roadside thickets or in tall weeds such as the field sparrow chooses to frequent, it shows little fear of man unless actually approached and threatened. Whether this fearlessness comes from actual confidence or stupidity, is not certain. Whatever the motive for its inactivity, it accomplishes the desired end, for its presence is seldom suspected by the passer-by, and its grassy nest on a tree branch, containing three or four pale bluish-white eggs, is never betrayed by look or sign to the small boy."

This species makes an interesting pet. It is fond of hemp seeds and becomes very much devoted to its keeper, but is apt to become melancholy and refuse food if placed in strange surroundings after being kept for some time as a pet in one household.

The nest is of grass, in bushes or in high weeds. Three or four pale bluish-white eggs are laid.

INDIGO BUNTING

The Indigo Bird of eastern and middle North America is about the size of our goldfinch, and is the only small bird we have with us whose plumage is entirely blue. The female is very plain and her plumage is suggestive of the female bobolink or scarlet tanager.

The Indigo Bunting, with the red-eyed vireo, dickcissel, and field sparrow, comprises the Noonday Quartette. These birds sing during the heat of the day, when other songsters are silent. The indigo bunting sings through August, when most birds are no longer heard. It loves to haunt the highest bough of a shade tree, sing sweetly for

a few seconds, and then launch into the air, continuing to sing as he descends obliquely to a lower brier or sapling. The males seem to prefer conspicuous places, and seldom alight except on the outermost branches of trees and shrubs. They are seed eaters, also partaking of small berries and insects, so are beneficial to the agriculturists.

They do not arrive from the South until well into May, when the foliage is advanced. Though breeding as far north as Minnesota and Nova Scotia, two broods are reared in a season. The first nest contains eggs about June 1st. Low situations, particularly brier bushes and haw, are favorite nesting sites. The three or four eggs are pale bluish-white. The nest is constructed outwardly of dead leaves and sometimes bits of paper are used. The lining is of fine grass and a little horse hair. The abodes are well hidden in dense places, and the males often retire fifty or one hundred yards from the nesting site, thereby sparing the female any uneasiness because of her mate's conspicuous plumage. The edges of timber tracts, roadsides, and pastures overgrown with shrubbery are usually haunts of the indigo bird, whose company is shared by the towhee and little field sparrow. Sometimes the indigo bird becomes very familiar and decides to nest in the little berry patch just back of the dwelling on a quiet street in our smaller towns; "the female indigo is so suspicious that it is not hard to be vexed with her." More than formerly, they are now seen along the hedges and lanes in the country, sitting on telephone wires.

The cowbird frequently deposits her eggs in the nests of this blue finch.